

# CITY OF GUSTINE GENERAL PLAN

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PREPARED BY  
MERCED COUNTY ASSOCIATION OF GOVERNMENTS  
AND  
THE CITY OF GUSTINE

ADOPTED JULY 20, 1992

AMENDED TO INCORPORATE NEW HOUSING ELEMENT  
APRIL 19, 1993

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# Introduction



## INTRODUCTION

What is the General Plan?

The 1992 Gustine General Plan contains the City's goals, objectives, policies and implementation measures for land use. It is designed to serve as the basis for all development decision making. This long range planning document will direct the physical development of the City through the year 2010.

In 1970 and 1971 State Law changed to require general plans to include a comprehensive treatment of development issues. This document contains the seven mandated elements addressing specific development issues including; Land Use, Housing, Circulation, Noise, Safety, Open Space and Conservation. Since zoning and subdivision codes must be consistent with the General Plan, it has become the most important document in the land use decision making process.

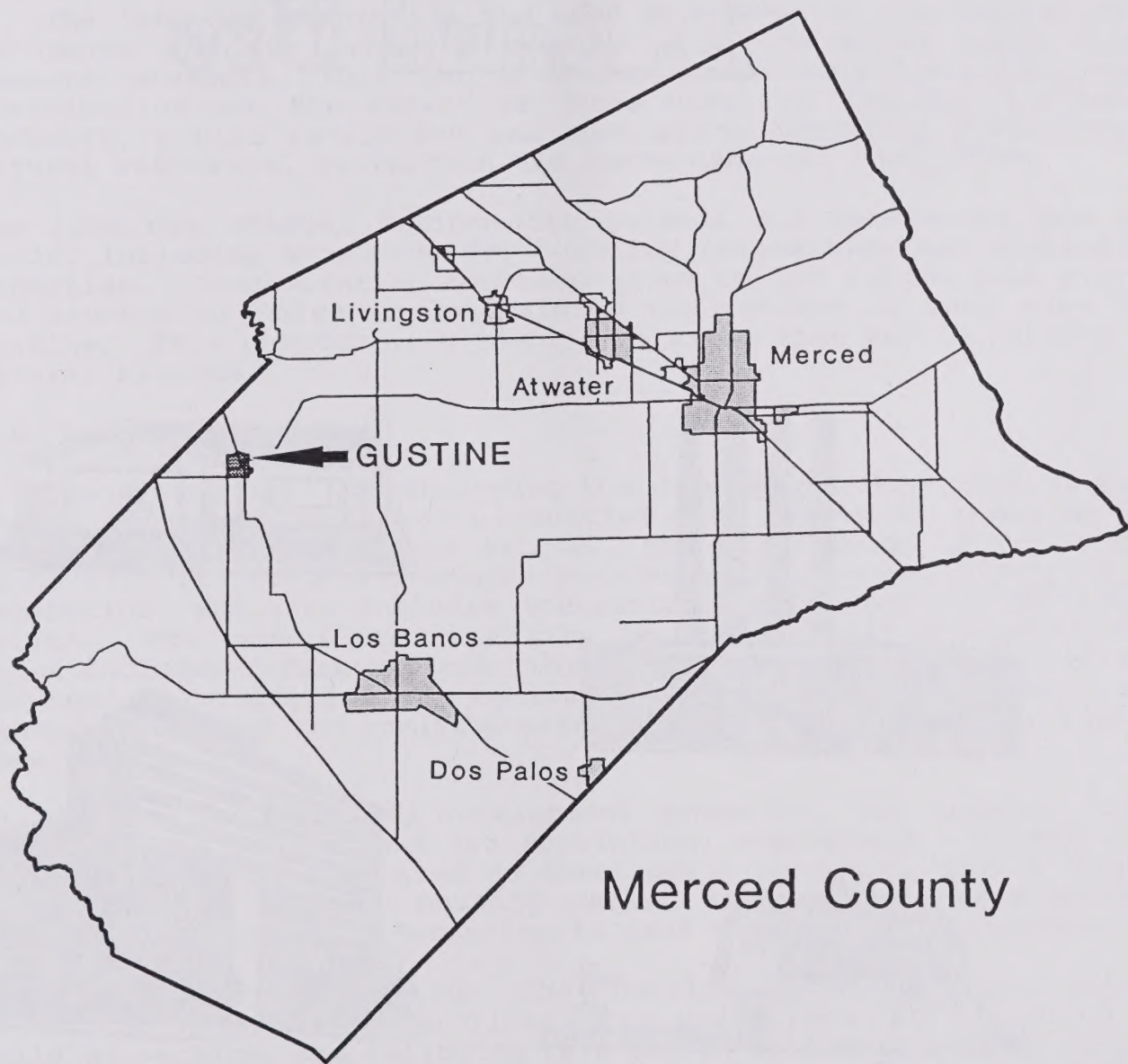
The purpose of this 1992 Gustine General Plan Update is to combine all elements into one internally consistent document which incorporates up-to-date research and information to meet all of the State requirements and local needs. This plan also proposes an expansion of the Gustine Sphere of Influence to accommodate growth during the next two decades.

How to Read and Use the Plan

The 1992 Gustine General Plan is oriented to provide the reader with the following: chapter introduction, research methodology, existing and future city development, growth impact analysis and a statement of goals, objectives and policies. Illustrations are intended to enhance the text however in the case of the General Plan and Circulation Maps they carry the same weight as the text. As a comprehensive document, the General Plan addresses all of the State mandated issues as well as those optional issues important and unique to Gustine.

The Plan is divided into chapters relating to the Elements required in Government Code (Section 65302). Government Code provisions are often overlapping and although topics may be appropriately included in various chapters, they may be thoroughly discussed in one chapter and only referenced in another. This was done to minimize repetition. All of the Chapters are interrelated and yet separate documents, which together will form the basis of Gustine planning actions.

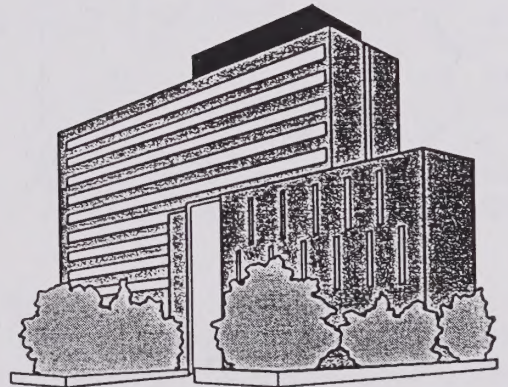
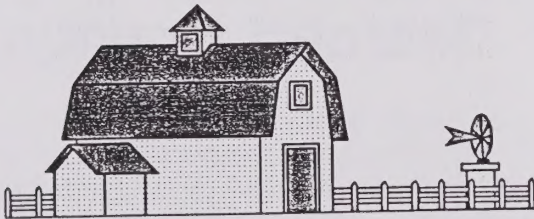
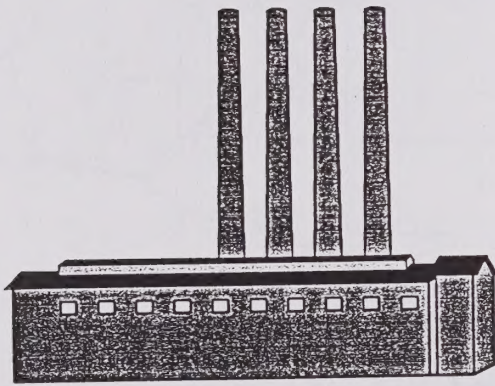




**Regional Location Map**

**Figure 1**

# I - Land Use





## CHAPTER I: LAND USE

### 1.0 Introduction and Purpose

The land use chapter is the most extensive of the General Plan documents and its contents overlap with the seven other State mandated elements. This chapter designates the existing and proposed distribution and the extent of these uses for housing, business, industry, public facilities and open space including agriculture, natural resources, recreation and waste disposal facilities.

The land use chapter defines the general use categories for all lands, including standards for building intensities and population densities. Consideration has been given to the future road system and sources of noise in determining the pattern of land uses for Gustine. This chapter also identifies areas that may be subject to natural hazards.

### 2.0 Methodology

The system used for analyzing the development potential of land inside of and adjacent to the Gustine City limits is known as the land suitability/capability method. The suitability of a site has to do with its natural features such as soils, geology, hydrology, vegetation, and also includes archaeologic and historic characteristics. The capability of a site is the man-made characteristic which includes infrastructure (water, sewer, roads etc.) and public services. Information was collected relative to both natural and man-made features and analyzed using a Geographic Information System (see Figure 2).

In addition to analyzing development potential, the General Plan uses regional projections for population, employment and land use. These projections are based on development activity, growth trends throughout the valley, housing market assumptions and community values. 1990 census information is used where it is available.

Population projections for the Gustine planning area assume restricted growth for the first four years, due to a ceiling on building permits, and following this period an annual average growth rate of 4.00% beginning in 1996 and carried forward to the year 2012. This equates to the new construction of approximately 90 homes a year with 2.6 persons per household for the first four years and then an average of 130 housing units each year thereafter.

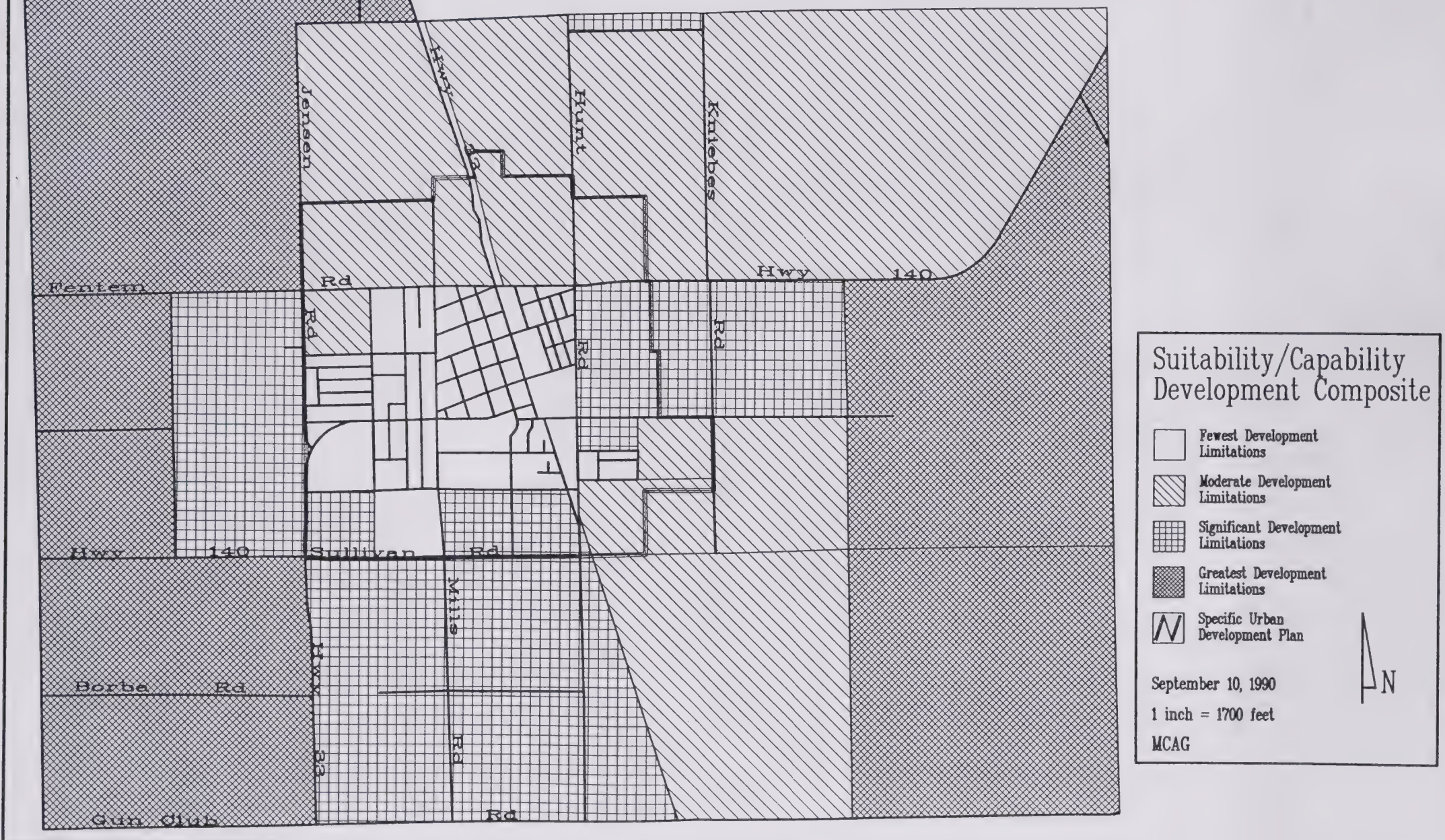
Table 1  
Population Projections for the Gustine Planning Area

1990 (Census)	3931
1997	5093
2002	6196
2007	7539
2012	9173





# Gustine Planning Area







A valley-wide trend analysis was performed to compare Gustine's employment characteristics with those of cities at its present and projected size. Employment projections are broken down into six categories with notable increases in the service and retail sectors over the course of the planning period (Figures 3 & 4). A decrease in agriculture and manufacturing, as a percentage of the total employed population, is anticipated by the year 2010. Approximately 6248 people or 51% of the total population are expected to be employed by the year 2010, assuming the current unemployment rate of 6.4% (April 1991).

Land use projections are a product of increases in both population and employment. The assumptions used in this document are that the majority (65%) of the residential development will be medium density ranging from 2 to 6 dwelling units per acre and that the higher densities in the planning area (10 & 15 units per acre) will account for 20% of the market share. The remaining 15% is low density with 1 to 3 dwelling units per acre (Table 2).

### **3.0 Existing Conditions**

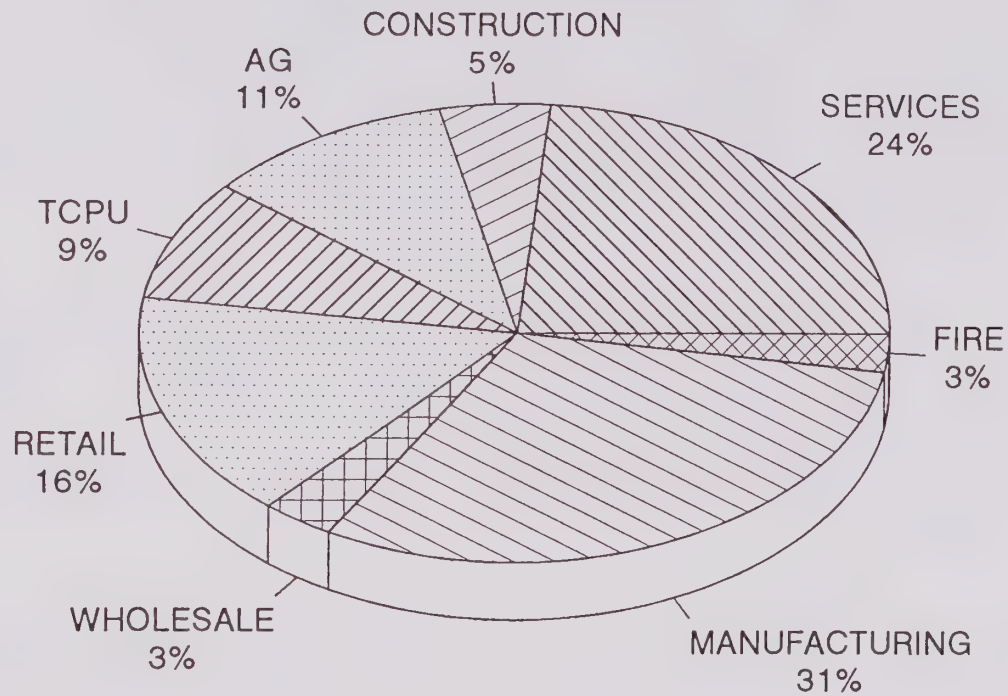
The corporate area of the City of Gustine comprises approximately one square mile (640 acres), with an additional 550 acres proposed for urban reserve designations within the City's Sphere of Influence boundary. Approximately 644 acres outside of the Sphere are planned for the expansion of the City's Wastewater Treatment Facility .

#### **Residential**

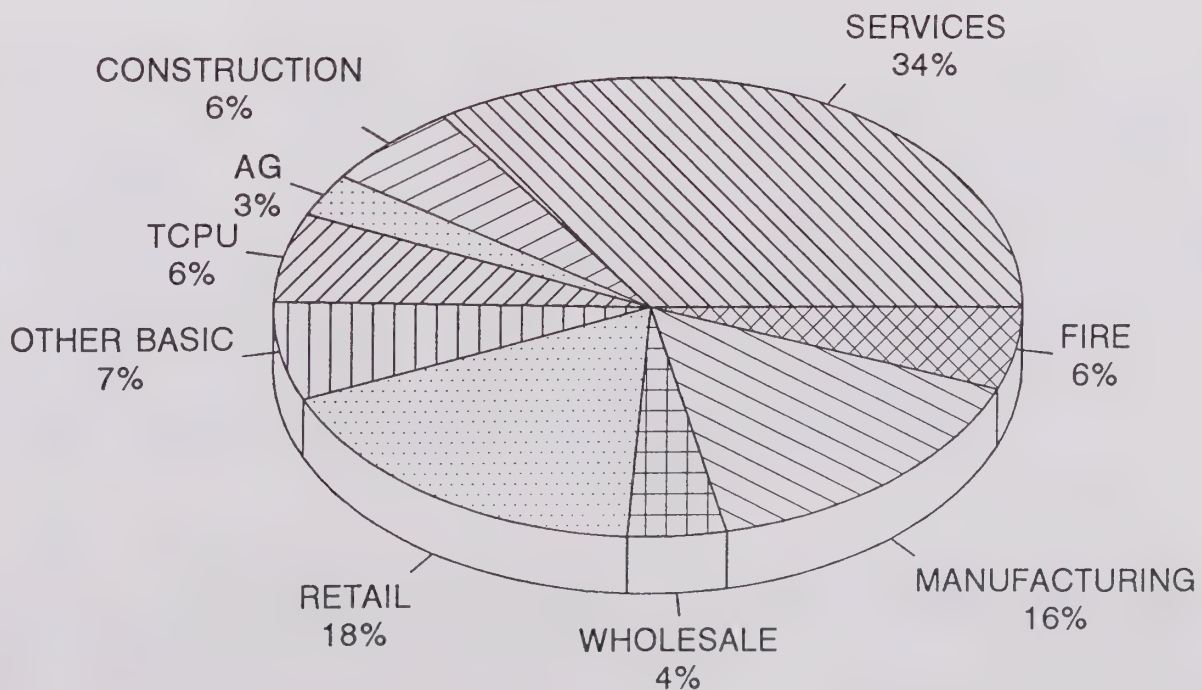
Nearly 61 percent of the City is devoted to residential uses and these are predominantly single family dwellings (79%). There are approximately 24 acres of vacant or undeveloped residential land in the City however most of this has been given tentative subdivision map approval, or would be difficult to develop because it exists as multiple, independently owned parcels. Gustine has four residential land use categories ranging from very low density (1-2 dus/acre) to high density multiple family residences (1-23 dus/acre with 1500 square feet of lot area per dwelling unit). Gustine also has a Residential-Professional District land use which could accommodate as many as 69 dus per gross acre. This district could conceivably host land uses such as multiple family units, hotels and motels, restaurants and bars, community facilities, and offices.

Although some land is designated for high density, much of this land has been developed in single family uses and there is little multiple residential land left. It appears that there is a significant demand for both low and high density residential uses within the Gustine planning area.

1990



2010



**Employment Comparison By Sector**

**Figure 3**



# City of Gustine

YEAR	1980	1990	1995	2000	2005	2010
AGRICULTURE	190	190	190	190	190	190
MANUFACTURING	360	360	360	465	696	989
OTHER BASIC	0	86	188	290	354	434
CONSTRUCTION	70	80	90	157	251	372
TCPU	142	142	155	177	270	387
WHOLESALE	49	52	75	121	187	270
RETAIL	248	269	290	482	755	1100
FIRE	43	46	49	123	230	364
SERVICES	282	395	577	947	1475	2142
BASIC	620	716	828	1101	1491	1984
NON BASIC	834	984	1235	2007	3167	4635
TOTAL EMPLOYMENT	1384	1621	1973	2951	4407	6248

**Employment Estimates &  
Projections by Sector**

**Figure 4**

CITY OF GUSTINE GENERAL PLAN											
Land Use, Housing & Public Service Projections											
23-Mar-93											
ASSUMPTIONS:			POPULATION PROJECTION		1992	1997	2002	2007	2012		
			Net Population Growth		3991	5093	6196	7539	9173		
						1102	1103	1343	1634		
TYP. DENSITY	LAND USE		MAXIMUM								
DU's /Acre	Person/HH	MarkShare	RESIDENTIAL	DENSITY							
					20 YEAR					CUMULATIVE	
					TOTALS					TOTAL	
1.5	2.6	5.00%	Residential Estate	2.9							
			DU's	9	21	21	26	31	100	108.8	
			Acres		14.2	14.2	17.3	21.0	67		
			Traffic ADT		318.5	318.8	388.2	472.3	1498		
4.7	2.6	60.00%	Single Family	7.1							
			DU's	1203	255	255	311	378	1198	2401.2	
			Acres		54.2	54.3	66.1	80.4	255		
			Traffic ADT		2439.6	2441.8	2973.1	3617.3	11472		
25.0	2.6	25.00%	Multiple Family	29							
			DU's	213	106	106	129	157	499	712.2	
			Acres		4.2	4.3	5.2	6.3	20		
			Traffic ADT		291.4	291.7	355.2	432.1	1370		
10.0	2.6	10.00%	Mobile Home	12 (T)R-3							
			DU's	15 (T)H-C	112	42	43	52	63	200	311.7
			Acres			4.2	4.3	5.2	6.3	20	
			Traffic ADT			291.4	291.7	355.2	432.1	1370	
	2.6	100.00%	Total DU's		1537	425	425	518	630	1997	3533.9
			Total Acres			72.6	72.7	88.5	107.7	341	
			Total Res. ADT			3049.5	3052.2	3716.4	4521.6	14340	
RESIDENTIAL WASTEWATER(gallons)					299325	381975	464700	565425	687975	2100075	2399400
INDUSTRIAL WASTEWATER(gallons)					698425	51962	52009	63325	77046	244342	942767
WATER USE (gallons)					1037660	286520	286780	349180	424840	1347320	2384980
STUDENTS K THRU 8TH					866	212	213	259	315	998	1864
STUDENTS 9TH THRU 12TH					399	85	85	104	126	399	798
ACRES/1000 PERSONS COMMERCIAL											
	0.51		Central Business			0.6	0.6	0.7	0.8	2.6	
	1.27		Professional Ofc			1.4	1.4	1.7	2.1	6.6	
	1.91		Neighborhood			2.1	2.1	2.6	3.1	9.9	
	1.15		Highway			1.3	1.3	1.5	1.9	6.0	
	11.91		General Service			13.1	13.1	16.0	19.5	61.7	
			Total acres		130.0	18.5	18.5	22.5	27.4	86.8	216.8
ACRES/1000 PERSONS INDUSTRIAL											
	10.31		Manufacturing			11.4	11.4	13.8	16.8	53.4	
	7.25		Controlled Industrial			8.0	8.0	9.7	11.8	37.6	
			Total acres		36.0	19.4	19.4	23.6	28.7	91.0	
			Grand Total			110.4	110.5	134.6	163.7	519.3	519.3

TABLE 2



## Commercial

The City's major retail commercial area is its central business district along Fifth Street between Second and Sixth Avenues. Commercial land accounts for about 130 acres or twenty percent of the corporate area. Approximately 50 acres of this land is vacant and continues to be farmed. The existing commercial land use designations include Retail Business District, Neighborhood Commercial District, General Service Commercial District, and Highway Commercial District.

## Industrial

Industrial land accounts for over 36 acres or six percent of the corporate land area, and there are approximately 7 acres of vacant industrial land. There are two Industrial land use designations. They are the Controlled Industrial District for restricted non-intensive uses and the Manufacturing District which provides for the full range of manufacturing activities.

## Other Land Uses

The existing General Plan designates land for Public Use, Open Space, and Planned Community. Public land means land designated for schools, public utilities, parks, wastewater treatment plants, airports and similar uses. Open space uses include agricultural land and outdoor recreation. Planned community designations may be assigned to residential, commercial or industrial land uses and are intended to give the city flexibility and control in specific site planning and development.

Gustine formerly used a solid waste disposal site located approximately 1/2 mile east of Kniebes Road on Carnation Road. The site consists of about 10 acres and has been abandoned. The city's solid waste is now disposed of at Merced County's Billy Wright Road landfill.

## 4.0 Future Conditions

The growth rate in Gustine during the past five years averaged 2.33% a year, however City leaders believe that there is greater growth potential than this historic rate represents. The steady migration of Californians to the Central Valley has led the Council to presuppose a 4.00% growth rate from 1994 through 2010 (once all building restrictions are lifted due to limited wastewater capacity). While restrictions are in place the City's growth will be limited to an average of 92 units per year a 5.65% growth rate.

The City expects some local economic stimulation through redevelopment and infrastructure improvements. Gustine is intentionally working to attract new industry and authorize the development of

new residential areas which would in turn support more retail commercial activity. The City also anticipates some increases in its commuting population who frequently have more disposable income.

Gustine's future land use patterns and characteristics (Figure 5) are based upon the land use capability/suitability analysis, land use projections, and land use compatibility. The population density for residential land uses within the City is an expression of the relationship between dwelling units per acre (dus/acre) and persons per household (Table 2). Building intensity is based on the maximum number of dwelling units per acre for residential development and floor area ratio (the ratio of building floor area to the total site area) for commercial and industrial development.

## Residential

Recent tentative map activity, the lack of vacant available land for residential development, and the regional housing need demonstrate the necessity for designating more residential land uses at various densities. The uses being proposed in this update are defined as follows:

**Residential Estate District (RE)** Allows for single-family dwellings with lots sizes of approximately 15,000 square feet. Densities are between 1 to 2 dwelling units per net acre (Very Low Density). This district combines the advantages of both urban and rural location by limiting development to very low density concentrations of one-family dwellings and allowing, subject to a use permit, limited farming operations. Other permitted uses may include second units, home occupations, public utility uses and buildings (excluding equipment yards, warehouses, or repair shops), churches, schools, parks, and playgrounds.

**Single Family Residential District (SFD)** Allows for single-family dwellings with lots sizes of approximately 6,000 square feet. Densities are between 2 to 6 dwelling units per net acre (Medium Density). Permitted uses may include those mentioned in the RE district except for farming operations.















**Multiple Residential District (MRD)** Allows for multi-family development such as duplexes, triplexes, condominiums and apartments. Densities are between 5 to 15 dwelling units per net acre (Medium High Density). The district is intended to provide suitable family living with a mixture of single and multiple family dwellings.

**Mobile Home Park District (MPD)** This designation combined with medium high density residential provides for Mobile home use for which the City may regulate the standards of lot, yard, and park area, landscaping, walls, signs, access and parking. A range of 10 to 20 acres is recommended, with a density of 12 dus/acre.



# GUSTINE GENERAL PLAN

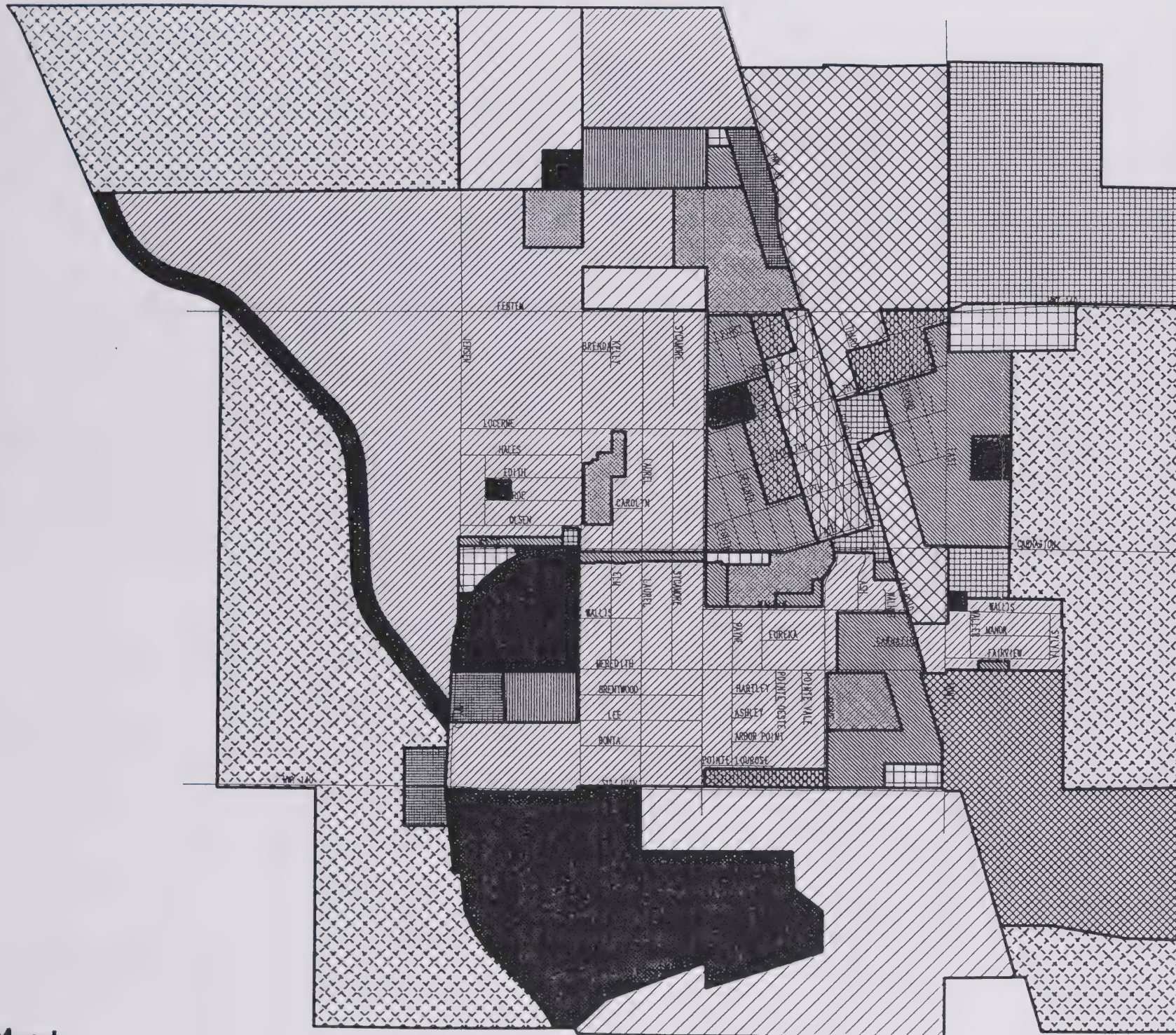
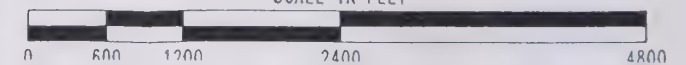
ADOPTED: JULY 20, 1992

-  Residential Estate
-  Single Family Residential
-  Multiple Family Residential
-  Mobile Home Park
-  Neighborhood Commercial
-  General and Service Commercial
-  Highway Commercial
-  Retail Business District
-  Residential-Professional
-  Park/Open Space/Recreation
-  Agriculture-Commercial
-  School
-  Manufacturing
-  Controlled Industrial

11

Figure 5

SCALE IN FEET







**Residential - Professional District (R-P)** Shall have a permissible density of 1 to 69 dwelling units per gross acre and is designed to provide residential areas which can accommodate a suitable mixture of more intensive land uses, including multiple family dwellings, hotels and motels, bars and restaurants, community facilities and offices, compatible with the surrounding area and consistent with the General Plan. Floor-area to site-area ratio for commercial uses is assumed to be .40.

## Commercial

Gustine has four commercial land use designations. These designations and their respective building intensity standards are defined as follows:

**Retail Business District (RBD)** This designation includes a full range of retail services and professional and governmental offices and is limited to the central commercial core. Floor-area to site-area ratio (FAR) is assumed to be 2.00.

**General and Service Commercial District (GSC)** This designation includes commercial uses not appropriate to the central commercial core but provides a mixture of commercial and light industrial activities including service stations, farm equipment sales and repair, auto repair and detailing and limited food processing. Floor-area to site-area ratio (FAR) assumed is .40.

**Neighborhood Commercial District (CN)** This designation includes convenience and commercial activities which are located in the vicinity of residential neighborhoods and are oriented to serving them primarily. Land uses include shopping centers and a full range of retail and professional services. Floor-area to site-area ratio (FAR) is assumed to be .40.

**Highway Commercial District (CH)** This designation is designed to accommodate auto-oriented commerce, and the needs of highway travelers at locations of high automobile access. Floor-area to site area ratio (FAR) is assumed to be .40.

The Central Business District will undergo redevelopment in the future. As there are numerous multi-storied buildings in this area, the FAR is higher than that of other commercial districts. Significant changes are being proposed for Neighborhood and General/Service Commercial land uses with a need for 16 and 99 acres being proposed respectively. The Residential Professional District will accommodate changes from a residential to a professional office land use, to a higher density residential use or to limited retail uses.





## Industrial

There are two industrial land use designations, which are defined as follows:

**Controlled Industrial (I)** This designation includes industrial parks, research/office parks, warehouses and manufacturing activities not generating significant off-site impacts. Residential uses would be prohibited. Floor-area to site-area ratio (FAR) is assumed to be .40.

**Manufacturing (M)** This designation includes a full range of manufacturing, processing, fabrication and storage activities generating heavy truck and equipment traffic. Residential uses would be prohibited. Floor-area to site-area ratio (FAR) is assumed to be .30.

The Industrial Park concept creates highly desirable industrial sites along major rail lines and highways where there is ample land and utilities to meet industrial needs. Some industrial parks combine both office and industrial development. Gustine will use its Planned Unit Development (PUD) designation to overlay and identify its industrial parks within its Manufacturing and Controlled Industrial districts

## Other Land Uses

Much of the land surrounding the City of Gustine is fallow or used for row crops. The General Plan update has redesignated all of the land within the planning area for a specific urban use.

Additional uses not previously defined include:

**Agricultural-Commercial (AG-C)** This designation is considered a transition zone between urban and rural uses. It provides for Ag related uses which may or may not be commercial. Agricultural-Commercial uses are those uses which are directly related to or are a part of an agricultural enterprise or operation. Ag-Commercial uses may include, but are not limited to, agricultural contractors and service establishments, agricultural processing plants, agriculture products storage plants and storage facilities, roadside stands, agricultural chemicals, airports and airstrips, farm equipment repair shops.

The Council members agreed that an Agricultural-Commercial District would be appropriate to control development outside the city limits but within the Sphere of Influence, while at the same time being compatible with the County General Plan.

**Urban Reserve (UR)** This is land designated for limited agricultural use with an indicated future urban residential, commercial, industrial, or public use. This applies to all land





designated in phase II (see Figure 6).

**Open Space (OS)** This designation is an overlay category and includes publicly-owned parks and recreation facilities, unimproved land, and agricultural uses. Park area is based on a ratio of 5 acres per 1000 people. Average residential density is assumed to be .20 dwelling units per gross acre.

**Planned Unit Development (PUD)** This designation is an overlay category which may be imposed upon any land use and includes mixed-use development. It is usually characterized by a unified site design for providing a mix of building types and land uses, housing unit densities, and common open space. The designation may include housing developments, shopping centers, industrial and office parks or a combination of each.

**Public (P)** This designation may be imposed upon any land use. It includes government-owned facilities, corporation yards, public and private schools, hospitals and quasi-public uses such as cemeteries. Park and school sites have been designated throughout the planning area based upon projected needs. In some instances the public school sites have been used as centers for new residential areas which are combined with neighborhood parks.

The city will continue to use the Billy Wright Road landfill, which is expected to be operable through 1995, and other county facilities as they are developed. The site of the former Gustine dump has been abandoned by the City, will not be used as a transfer point, and will not be relocated.

### Phasing Development

The proposed General Plan map illustrates the land use designations for the ultimate build out of the planning area. Obviously, the development of this entire area takes time and is dependent upon a variety of factors including infrastructure, public financing, and market forces. For the purpose of long range planning and financing, the Gustine General Plan proposes two, ten-year development phases (see Figure 6).

These phases are based upon projected land use needs, the availability of infrastructure and public services and the implementation of capital facilities programs. Land held for development in later phases will be designated "Urban Reserve" (Residential, Commercial, Industrial, etc.) and remain in this category until the City determines that there is a demand for new annexation and development.

## 5.0 Impact Analysis

Land use projections indicate that a total of 547 acres will be needed for residential development by 2010. The land use



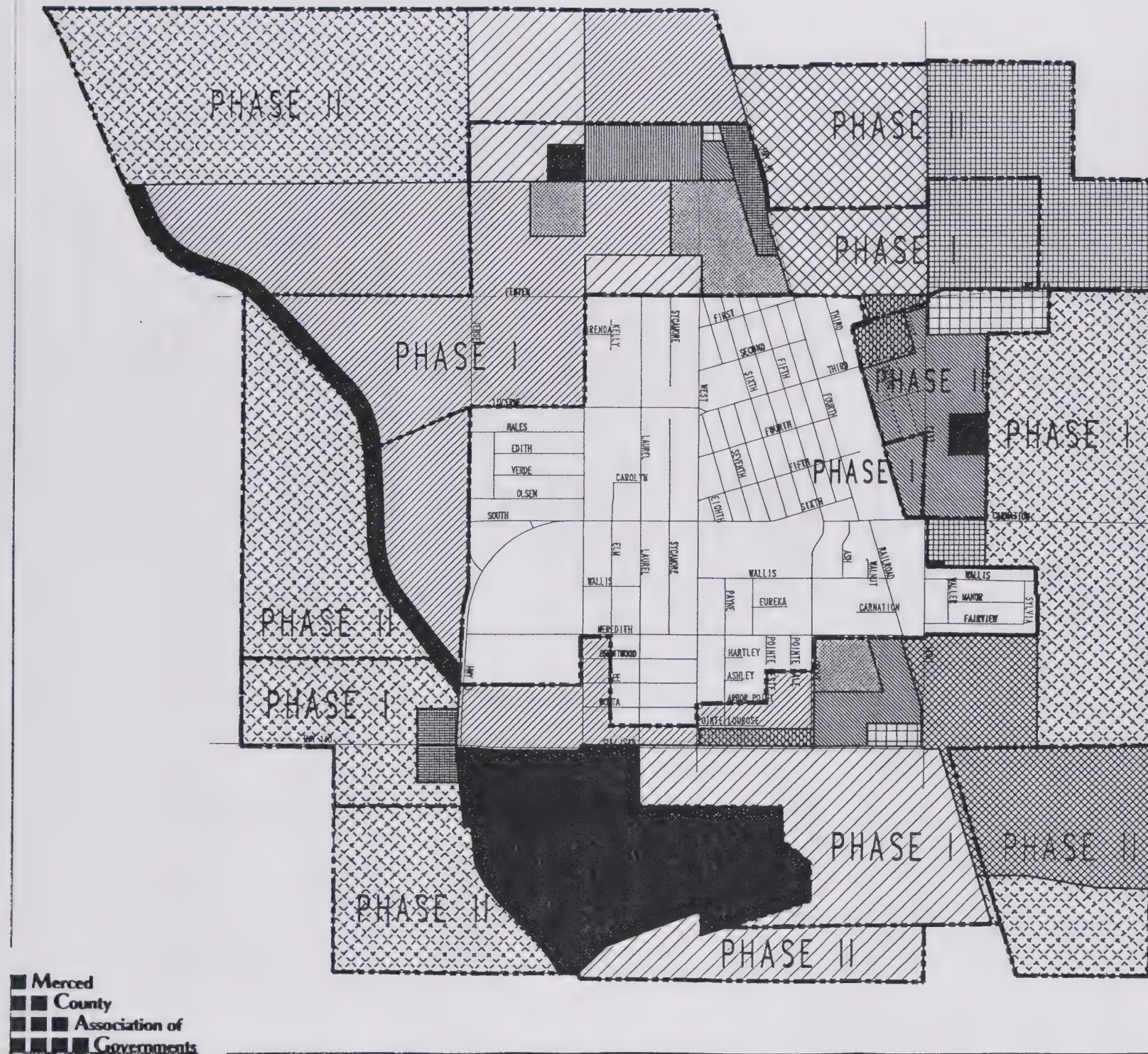
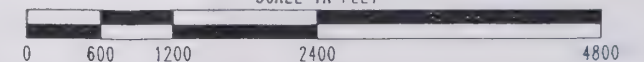


## PHASE II The Year 2010

	Residential Estate
	Single Family Residential
	Multiple Family Residential
	Mobile Home Park
	Neighborhood Commercial
	General and Service Commercial
	Highway Commercial
	Retail Business District
	Residential-Professional
	Park/Open Space/Recreation
	Agriculture-Commercial
	School
	Manufacturing
	Controlled Industrial

19

SCALE IN FEET







analysis identifies the areas of least development limitation immediately adjacent to the City of Gustine. These areas include property north of the City between Jensen Road and State Highway 33, east of Jensen Road to the CCID Main Canal and south of Sullivan Road to Borba Road between the Main Canal and Hunt Road. The proposed General Plan (Figure 5) actually designates in excess of 547 acres for new residential development which would accommodate the City's development needs to the year 2010 and beyond.

Under two ten-year phases, residential development would generate a need for the construction of one new elementary school in each of the two phases, and high school expansion in the second phase. The City would have the flexibility of using its "Public" land use designation to modify the proposed school locations and it could also approve school construction outside of the phases being recommended.

The projected commercial and industrial development potential that is represented by the General Plan map is 2.7 million square feet for commercial and 2.2 million square feet for industrial (see Table 3). This could create a tremendous demand upon the City's infrastructure unless it is approached in the manner proposed under Goal II of this chapter. Impacts to City roads and infrastructure are addressed in Chapter II: Circulation.

In response to current and future development demands the City has embarked on the expansion of their wastewater treatment plant (see Figure 7). Once the plant is expanded, it will meet the growth demands through 2010 based on the population and land use projections of this General Plan.

Various General Plan designations have been located so as to be consistent and compatible with the proposed road system, new land uses, and potential sources of noise.

## **6.0 Goals, Objectives and Policies**

**GOAL I**      **To provide adequate land for the City's urban development, while preserving prime and producing agricultural land, sensitive wetlands, and lands of environmental significance.**

This goal resulted from capability and suitability analysis and the City's decision to preserve prime farmland by directing new development 2640' south of Bambauer Road, north of Borba and Noble Roads, west of Kniebes, and east of Prince Road and the CCID Main canal (whichever is furthest west).

### **Objectives:**

**A. Designation of 547 acres for residential land development during the 1991 - 2010 planning period.**

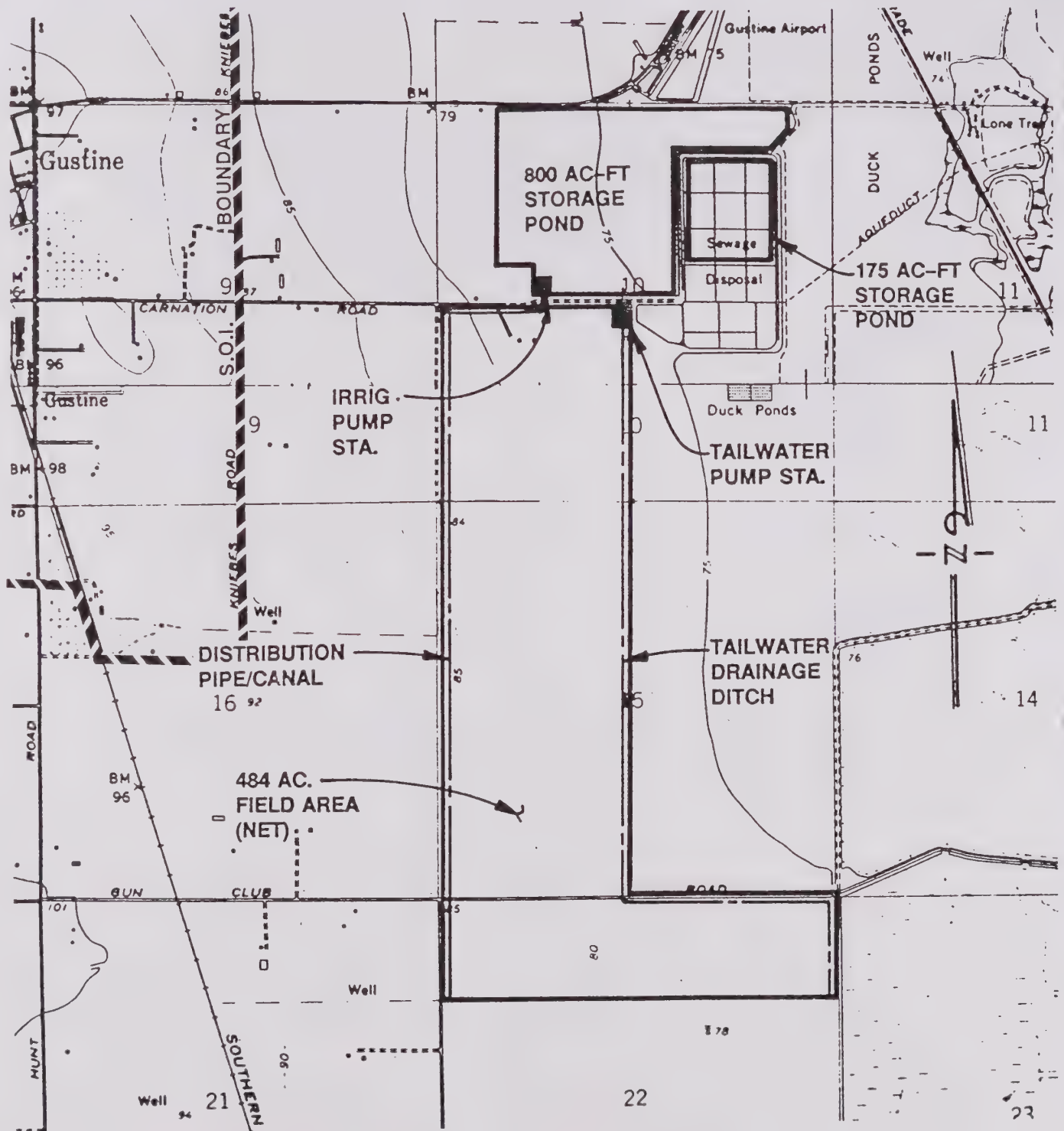




TABLE 3

<b>COMMERCIAL AND INDUSTRIAL DEVELOPMENT POTENTIAL</b> (New Development Only)		
	Acres*	Square Feet
<b>Commercial</b>		
Central Business	4	348,480.0
Transition	10	174,240.0
Neighborhood	16	278,784.0
Highway	9	156,816.0
General & Service	98	1,707,552.0
Total Commercial	137	2,665,872.0
<b>Industrial</b>		
Controlled Industrial	60	1,045,440.0
Manufacturing	86	1,123,848.0
Total Industrial	146	2,169,288.0

\* Based on Table 2



Waste Water Treatment Plant Expansion

Figure 7



- B. Designation of 138 acres for commercial land and 634 acres of Ag-Commercial development during the 1991 - 2010 planning period.
- C. Designation of 144 acres for industrial land development during the 1991 - 2010 planning period.
- D. Designation of ~40 acres - two 15 acre sites for the construction of new schools and 10 acres for expansion of the high school.
- E. Designation of ~25 acres and multiple sites for the development of new parks.
- F. Designation of 175 acres of land for recreation and open space.
- G. Designation of 660 acres of land for wastewater treatment and open space.

Designating land adjacent to the City for new urban uses based on population, employment and land use projections ensures that the City will have an adequate amount of land for future development.

**Policies:**

- 1) Emphasize the infilling and revitalization of existing vacant land within the City whenever possible.
- 2) Expand the Sphere of Influence (SOI) boundaries as defined in the proposed General Plan Map with the intention of either controlling the development of land surrounding the city or annexing these areas during the planning period.

The City will ask the County to amend its General Plan to reflect the expansion of the Gustine SOI. The City will also approach LAFCO and request that its Sphere of Influence be expanded.

- 3) Coordinate with Merced County in planning and regulating the use of land in unincorporated portions of the planning area.
- 4) Request that Merced County refer all environmental documents and related development applications within the planning area and/or within one mile of the corporate limits to the City for review and comment.

These policies are intended to protect land designated for urban development or as an urban reserve with the unincorporated portions of the planning area from inappropriate or premature development.

5) The standards and definitions specified in Section 4.0 and in the zoning consistency table (Table 4) will not only be used to determine the zoning that is consistent with the land use classifications of this plan but will also be used as a guide for approving development proposals.

6) Zoning may be consistent with the General Plan on an interim basis.

7) Zoning is inconsistent with the General Plan when it permits development that conflicts with/prevents the attainment of the objectives and policies of this plan. In those instances where new land use designations are created with this update, the City will initiate the rezoning that is necessary in order to achieve consistency with the General Plan.

Consistency between the City's development (zoning, subdivision) codes and the General Plan is imperative in order to realize local goals and objectives (implement the plan).

**GOAL II** To provide water, wastewater, and other municipal services to the City of Gustine which will promote economic growth and community well being.

**Objectives:**

**A.** A comprehensive finance plan (CFP) for infrastructure to serve the projected residential, commercial, industrial, and institutional land uses of Gustine and its SOI by 1993.

Infrastructure and methods for financing it are critical to attracting new business and also satisfying existing community needs.

**B.** A short term and long term capital facilities program for municipal administration, fire and police protection by 1995.

This plan is proposing phased development over a twenty year period therefore both short and long term programs are necessary.



TABLE 4

ZONING CONSISTENCY TABLE	
Land Use Classification	Consistent Zoning
Residential Estate District	RE, PC, P*, U**
Single Family Residential District	R-1, PC, P*, U**
Multiple Residential District	R-3, M-H, PC, P*, U**
Mobile Home Park District	M-H, P*, U**
Residential-Professional District	R-4, PC, P*, U**
Retail Business District	C-1, PC, P*, U**
Neighborhood Commercial District	C-N, PC, P*, U**
General Service Commercial District	C-2, PC, P*, U**
Highway Commercial District	C-H, PC, P*, U**
Controlled Industrial	I, PC, P*, U**
Manufacturing	M, PC, P*, U**
Agricultural-Commercial	A-1 County***, A-C, A-R, P*, U**
Public****	
Open Space	A-R, P*, U**
Planned Community District*****	PC, P*, U**
Urban Reserve*****#	Existing County Zoning***, U**
<p>* Public zoning is consistent, subject to conformance with special policies.</p> <p>** Unclassified zoning is consistent on an interim basis.</p> <p>*** City zoning will be made consistent at the time that the City reviews and approves annexation requests.</p> <p>**** Appropriate zoning for any public land uses will be determined by the Planning Commission and City Council.</p> <p>***** These categories may be combined with any of the other districts.</p> <p># Designated for limited agricultural use with an indicated future urban residential, commercial, industrial or public use.</p>	

## **Policies:**

- 1) New urban development should provide for adequate public services and improvements including public safety, sewer, water, drainage, circulation, schools and recreation facilities in order not to reduce the level of public services to existing developed areas.
- 2) Manage the location and rate of development through the provision and availability of public utilities, streets and roads, and other infrastructure by developing areas with fewest development limitations first.

The capability/suitability analysis is the basis from which the City will generally manage the location and rate of development.

- 3) Efficiently deliver desired levels of police, fire, administrative and social services during the planning period.
- 4) Designate future school sites which could become magnets for new residential areas and which may be combined with neighborhood parks and open space (see Figure 5).
- 5) Cooperate with local school districts for site acquisition and land development around school sites.
- 6) No land-use project, including but not limited to zoning, rezoning, annexation, development agreement or subdivision, shall be approved unless adequate school facilities are available to serve the project or that the provision has been made to mitigate the project's impact on school facilities.
- 7) The provision of school services and sites should be planned to support the designated land uses and population of the plan area.
- 8) Promote additional health care facilities including, but not limited to, residential care and nursing homes, maternity and pediatric facilities and dental offices.

## **GOAL III To provide safe and attractive residential neighborhood environments with a variety of housing**

This goal reflects general public consensus during community town hall meetings regarding residential development in Gustine.



## **Objectives:**

- A.** An upscaled and improved quality of housing throughout the City.

The City is interested in providing more moderate and above moderate (income) housing within its planning area along with its fair share of low income housing.

## **Policies:**

- 1) Encourage the infilling and rehabilitation of existing, appropriately located residential areas.

Improving overall appearance not only involves new subdivision construction but also the redevelopment of dilapidated buildings and improvement of vacant lands.

- 2) Encourage innovative, quality design in the redevelopment or infilling of existing residential areas and in the development of new ones.

New and rehabilitated housing should be designed and constructed so that they are energy efficient, and take advantage of solar orientation and open space.

- 3) Planned Unit Developments (PUDs) are consistent within areas designated for medium high and high density residential land uses.

- 4) Mobile Home Parks may be approved within areas designated for multiple residential land uses.

Both of these categories potentially satisfy the goal of providing a variety of housing which is affordable, attractive and can be upscale. More detailed policy for these residential land uses can be found in the Housing Element.

**GOAL IV    To promote the downtown business district as the retail center of the community and other commercial development at appropriate community locations**

There will be an increasing need for various types of commercial land use activities as the population of Gustine grows. Given the existing land use/population ratio, the City's projected commercial land use need in 2010 will be 137 acres (2.7 million square feet). Although new commercial locations are important to the City, local officials believe that initial emphasis should be placed upon the downtown which is the commercial core.

### **Objectives:**

- A.** A downtown revitalization plan which includes its role as the community's retail center and its historical architecture by 1995.

The downtown represents the City's business and community hub and the enhancement of this area can give local residents a greater sense of place.

### **Policies:**

- 1) Direct and/or provide incentives for certain kinds of commercial uses in the downtown area.

New commercial centers should complement rather than compete directly with the downtown.

- 2) Implement a downtown revitalization program through the City's Redevelopment Agency during the 1992-1997 planning period.
- 3) Identify and register historic buildings/sites.
- 4) Set up a steering committee to develop architectural controls which would prevent the destruction or inappropriate alteration of historic buildings and ensure compatible building styles for infill development downtown.

The purpose of these policies is to enhance and maintain the economic and functional viability of the central business area.

**GOAL V      To promote agricultural industry, associated processing firms, and other clean industry, identify environmentally suitable locations, and provide adequate services for their operations.**

Gustine has long been recognized as an agriculturally oriented community. The City's desire is to enhance its agricultural base (with ancillary businesses) and also diversify economically by attracting other forms of industry to its planning area.

### **Objectives:**

- A.** Designation of **810** acres for Ag-Commercial development during the 1992-2010 planning period.
- B.** Create a separate Ag-Commercial zoning district.



**Policies:**

- 1) Upon annexation, at the discretion of the City, Ag-Commercial uses may utilize City services.
- 2) Work cooperatively with the Merced County Strategic Economic Development and Planning Departments to ensure new Ag related development in Gustine.

**Objectives:**

- C. Retention of existing industrial firms with 375 employees by 1995 and 450 employees by 2010.

Existing firms employ approximately 360 people. These projections represent modest increases given mechanization and other trends in agriculture.

- D. Creation of 105 new industrial sector jobs through the expansion of existing firms and the recruitment of new industrial firms by 2000, 629 by 2010.

These figures come from the employment projections in Section 2.0, Figure 4.

- E. Attract 2 new "dry industries" by 1995, 8 by 2010.

Recruitment emphasis will be placed upon those industries which are not big sewer and water users. The number of new industries may be related to building square footage in Table 3.

**Policies:**

- 1) The City will work closely with any environmentally responsible industries to find an appropriate site in the planning area and also to assist them in obtaining the necessary approvals for development and operation.
- 2) The City will formulate and implement an economic and industrial marketing strategy aimed at promoting new industry within the planning area.

These policies are consistent with previous studies and recommendations prepared for the City of Gustine.

- F. Identification of an industrial site(s) with building and services by 1994.

A suitable amount of land has been designated for industrial use.

Phased development of this land will ensure that services are available when needed.

**Policies:**

- 1) Keep industry accessible to major highways and railroads.

The truck traffic generated by industry is best directed away from local streets and onto collectors and arterials.

- 2) Minimize land use and circulation conflicts between industrial uses and other types of land uses and traffic.

- 3) Require site plan review for industrial development in order to evaluate land use compatibility, landscaping, visual screening, signage and off-street parking.

These are current policies of the City and have been included in this update because they are still applicable.

**GOAL VI**    To provide a transition from urban to rural land uses by controlling development which occurs outside the City limits, but within the Sphere of Influence.

**Objectives:**

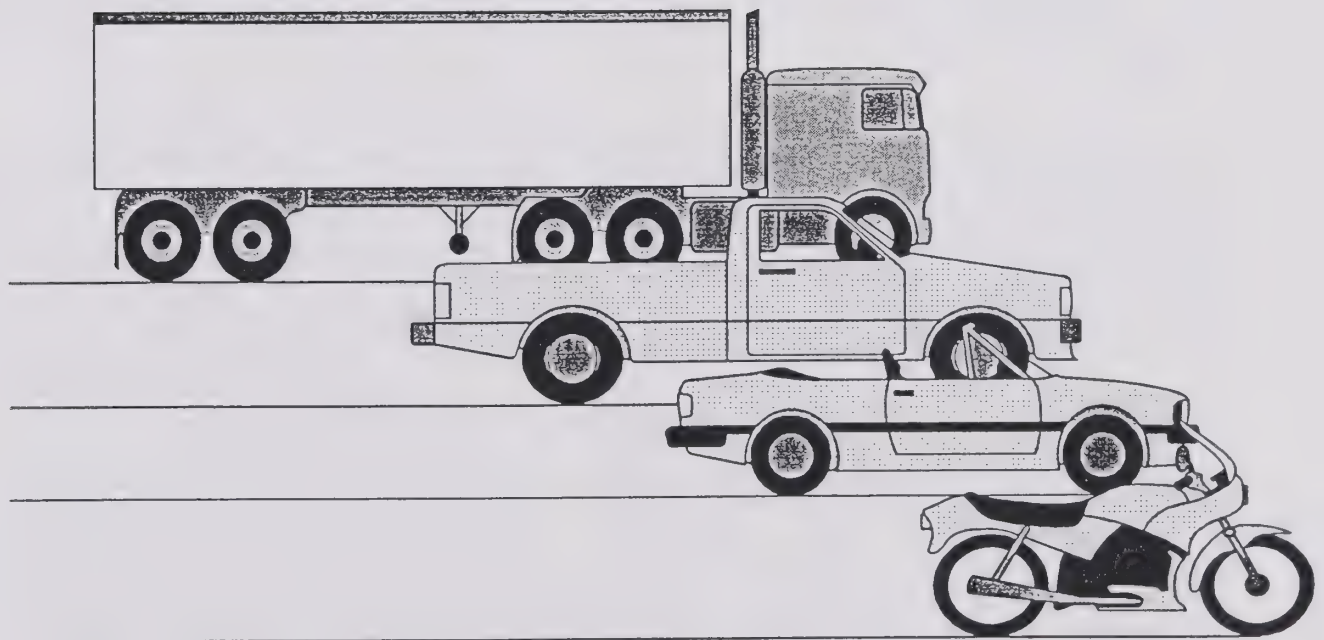
- A. Create a new designation compatible with urban/rural mix of County agricultural designations by 1992.
- B. Apply to County to amend it's general plan by 1993.
- C. Redraft a City-County Agreement to include the new SOI boundary.

**Policies:**

- 1) Observe City-County Agreement by notifying county of land use changes outside City limits but within the SOI.
- 2) Promote open space, recreation, and/or agriculture related land uses within the SOI.
- 3) Protect farmers from nuisance claims from urban dwellers by enforcing the "Right to Farm" ordinance on all subdivision applications for residential development at the fringe of the City.



# III - Circulation



## CHAPTER II: CIRCULATION

### 1.0 Introduction and Purpose

The purpose of this chapter is to develop a plan to provide for the circulation of people, goods, energy, water, sewage, storm drainage, and communications to serve the anticipated land use activities throughout the City. Circulation issues have a direct relationship to other chapters of the General Plan including Land Use, Housing, Open Space, Noise and Safety.

The Circulation Element is divided into three sections which discuss vehicular transportation and roads, alternative modes of transportation (public transit, rail, air, and bicycle routes), and other infrastructure issues (water, sewer, power, irrigation and storm drainage facilities).

### 2.0 Methodology

#### Streets and Roads

The future direction of circulation in this document is in large part a reflection of local desires and requirements. To analyze future circulation needs; existing conditions, future population growth, and land use projections were used (For more information on the derivation of projected land use see Chapter I: Land Use, Methodology). The assumption was made that the volume of traffic would increase due to development of vacant land. To determine future Average Daily Trips on streets and roads, trip generation methods from the Institute of Transportation Engineers were used in conjunction with future land use designations.

#### Alternative Transportation Modes

In order to determine future needs of alternative modes of transportation; current trends, workforce population, local jobs, and population growth were considered. Currently, the entire Westside of Merced County, including Gustine, is seeing an increase in the number of new residents commuting to the Bay Area. The working age population (2166 people age 18 to 65) minus local jobs (1621) plus an unemployment rate of 6.4% (138) equals 407 commuters. It was assumed that the current transit ridership, 14 riders/day, would increase by 10 to 15 times by the year 2010 based on forecasts from Merced County Transit administrators. This figure could vary depending on changes in services, increasing energy costs, and air quality concerns. The location of bike routes was determined by several factors including their separation from major highways and arterials, use in conjunction with canal R.O.W.s and use as a connecting link for parks and schools. Regarding Gustine Airport, a grant application has been submitted to obtain funds for the completion of an Airport Land Use Study.



## Other Infrastructure

Future demands on City infrastructure such as water and sewer were derived from current population and demand ratios, future population projections, and independent engineering studies.

### 3.0 Existing Conditions

#### Streets and Roads

Automobile and truck transportation are the primary sources for moving people and commodities in and through the City of Gustine. The roads in the Gustine Planning Area serve different purposes for various land uses. Local roads in residential neighborhoods provide low volume routes for residents to gain access to retail shopping centers and other activities whereas major streets are used to distribute products (truck traffic) and provide high volume routes for employees to access industrial and commercial areas. For a description of level of service see Table 5.

The City of Gustine uses a functional road classification system together with its General Plan land uses to make up its Circulation Plan. The design characteristics of different roads and their relationship to one another is based upon their capacity to serve the functions of access and movement. Table 6 defines the Gustine road classification system and respective road characteristics. Illustrations of various street cross-sections are shown in Figures 8 and 9.

Though there now seems to be adequate on-street parking, the City Council has recognized that Gustine has a shortage of off-street parking particularly in the downtown commercial district. In an effort to improve this situation, the city requires new development to provide adequate parking based on building square footage.

The City of Gustine supports and participates in the development of the Merced County Regional Transportation Plan (RTP), and its policies and programs. The RTP is divided into two areas. One identifies local projects the City will undertake during the next seven years provided money is made available through Local Transportation Funds (SB380) or other local funding options. The other is a long range plan which identifies road maintenance and repair over the next twenty years (see Appendix A-1).

Gustine's current traffic volumes are within the carrying capacity of the City's streets, however the maintenance condition of many streets is less than adequate. The City Council has identified a number of roads which currently need to be resurfaced which are illustrated in Figure 10.

TABLE 5

## Level-of-Service Definitions

Level-of-Service	Volume-to-Capacity Ratio	Description
A	0.00-0.59	Free flow. Individual users are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to maneuver within the traffic stream is extremely high.
B	0.60-0.69	Stable flow. The presence of others in the traffic stream begins to be noticeable. Freedom to select desired speeds is relatively unaffected, but there is a slight decline in freedom to maneuver within the traffic stream from LOS A.
C	0.70-0.79	Stable flow. Interactions with others in the traffic stream significantly affects the operation of individual users. The selection of speed is now affected by the presence of others and maneuvering within the traffic stream requires substantial vigilance on the part of the user.
D	0.80-0.89	High-density, but stable flow. Speed and freedom to maneuver are severely restricted.
E	0.90-0.99	Conditions are at or near capacity. All speeds are reduced to a low, but relatively uniform value. Freedom to maneuver within the traffic stream is extremely difficult, and it is generally accomplished by forcing a vehicle or pedestrian to "give way" to accomplish such maneuvers.
F	$\geq 1.00$	Forced or breakdown flow. This condition exists wherever the amount of traffic approaching a point exceeds the amount which can traverse the point. Queues form behind such locations. Operations within the queues are characterized by stop-and-go waves, and they are extremely unstable.

Source: Highway Capacity Manual, Transportation Research Board Special Report No. 209, Washington, D.C., 1985.

## Gustine Functional Road Classifications and Characteristics

ROAD TYPE	TYPICAL RIGHT-OF-WAY RANGE	TYPICAL ACCESS CONTROLS	TYPICAL INTERVALS DISTANCES	TYPICAL SPEEDS	TYPICAL TRAFFIC VOLUMES	OTHER DESIGN FEATURES
Cul de sac	52'	Direct access generally allowed but controlled in exceptional circumstances <sup>1</sup>	0-1/2 mi. in urban areas, larger intervals in rural areas	5-30 mph in urban areas and higher speeds in rural areas	0-200 ADT <sup>2</sup>	Designed to prevent through traffic in residential areas
Local Roads	60'	Direct access generally allowed but controlled in exceptional circumstances <sup>1</sup>	0-1/2 mi. in urban areas, larger intervals in rural areas	5-30 mph in urban areas and higher speeds in rural areas	0-3000 ADT	Designed to prevent through traffic in residential areas
Collectors	74'	Direct access generally allowed but should be minimized <sup>1</sup>	1/4-3/4 mi. in urban areas, larger intervals in rural areas	20-40 mph in urban areas and highway speeds in rural areas	2,800-10,000 ADT	Collects traffic from local roads and connects with roads which carry higher volumes of traffic at greater speeds
Arterials (Highways)	94' (110')	Controlled access for new subdivisions. Shared access shall be encouraged <sup>1,3</sup>	1-3 mi. intervals in urban areas, larger intervals in rural areas	35-55 mph in urban and rural areas	9,600-40,000 ADT	Similar to major collector but vehicle trips are typically longer distances. Frontage roads should be considered, on-street parking is undesirable

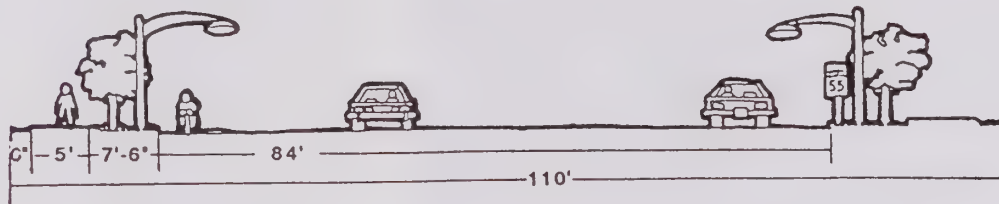
1. Direct access points should be from roads which are designed for access, not movement; i.e. first to local

2. Average Daily Trips

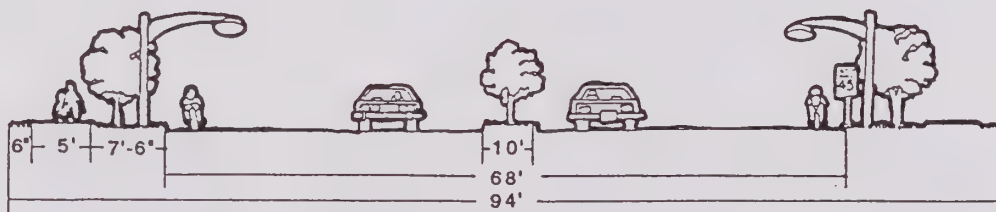
3. Left turn movements from specific projects may be prohibited



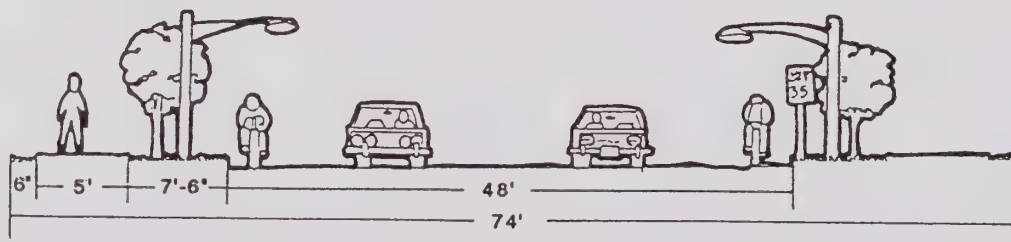
## STATE HIGHWAY



## ARTERIAL\*



## COLLECTOR STREET

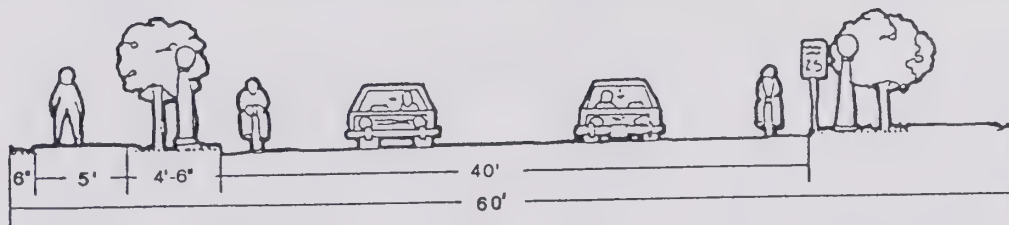


\*The Arterial Median is optional and width can vary

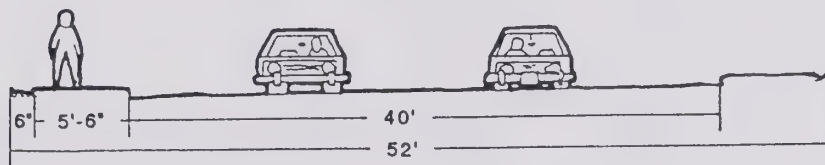
Characteristic Cross Section:  
Collector & Arterials

Figure 8

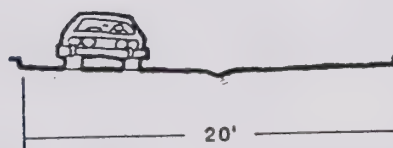
## LOCAL STREET



## RIGHT OF WAY FOR CUL-DE-SAC

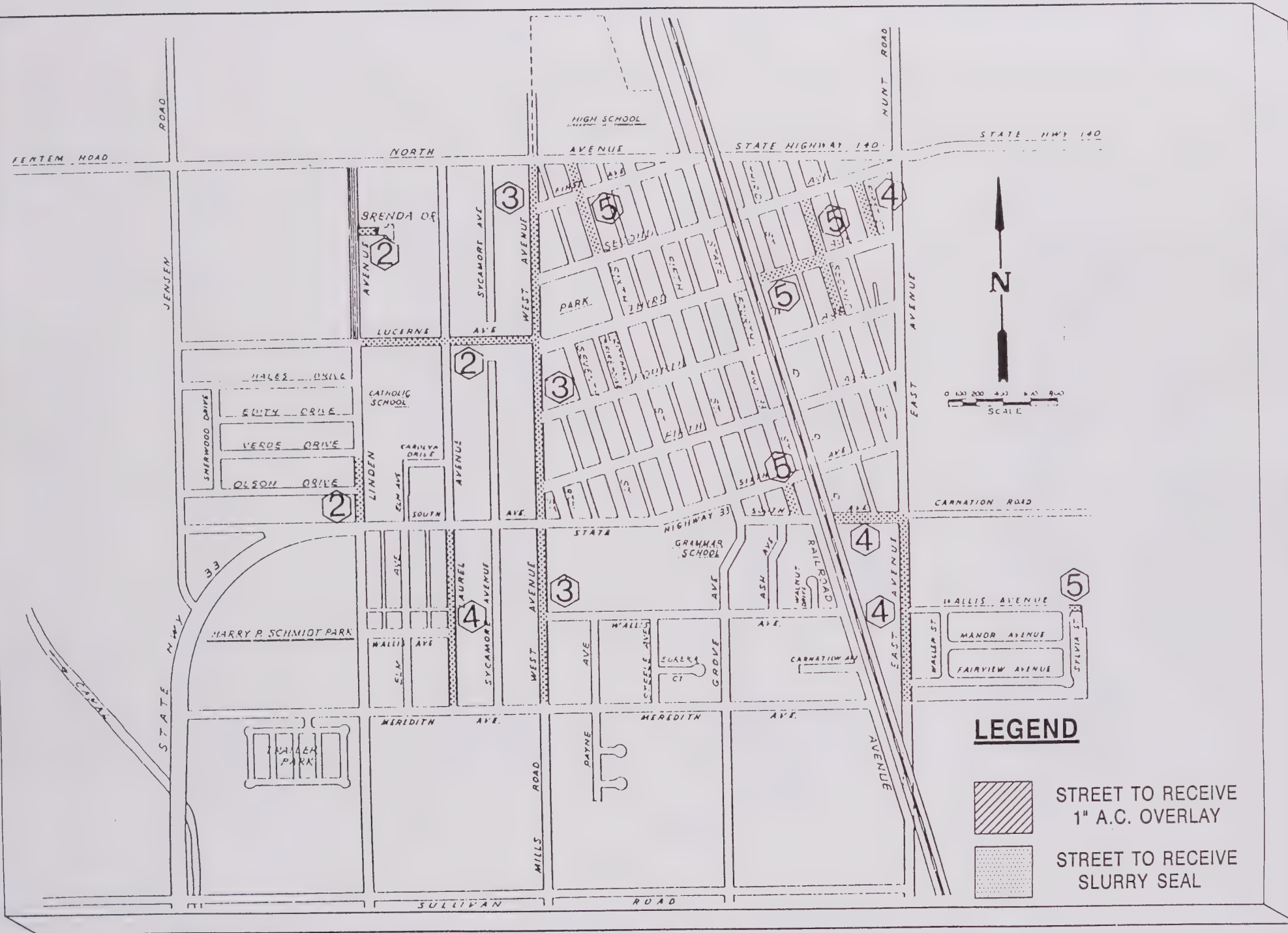


## RESIDENTIAL ALLEY



Characteristic Cross Section:  
Cul-de-Sac & Residential

Figure 9





## Alternative Transportation Modes

Alternative Transportation Modes available to residents in Gustine include intercity transit, ridesharing, airplane, bicycle and pedestrian.

Merced Area Regional Transit System (MARTS), a service provided by Merced County, provides intercity transit service for Gustine. MARTS provides a Dial a Ride service which operates weekdays 8:00 am to 5:00 pm between Gustine, Los Banos, Newman & Santa Nella. MARTS requires a minimum 1 hour reservation, and fares range from \$.50 to \$2.00. Stanislaus County Transit has recently implemented their Westside Stage service, a fixed route transit bus stopping at Gustine, Newman, Crows Landing, Patterson, Wesley and Grayson and then heading on to Modesto. This service runs three times per day, the first bus leaving Gustine from Henry Miller Park at 6:05 am arriving in Modesto at 7:35 am. Other departures 12:35 pm and 6:55 pm arriving in Modesto at 2:05 pm and 8:25 pm respectively. Return trips leave Modesto at 11:00 am and 5:20 pm reaching the route termination point in Gustine at 12:30 pm and 6:50 pm, respectively. A one way ride will cost 75 cents, with those over 60 or handicapped paying 50 cents. There are volume discounts available.

Transit providers in Merced County have developed a typical transit user profile which consists of elderly and handicapped, individuals on income assistance, students, and individuals without automobiles. The largest percentage of these are students (29%), then elderly (9%) and then income assisted (4%).

Ridership for the City of Gustine averages fourteen one-way dial-a-ride (DAR) passengers per day. Currently MARTS is operating below capacity, however MARTS expects a continuing increase in ridership due to their recent service improvements.

Currently there is no bus company which provides service to Gustine residents. There are no bus terminals nor are there any plans for any bus companies to locate stations in Gustine in the near future.

Ridesharing services are provided to Gustine residents by Merced Ridesharing. People over the age of 18 who are living or working in Gustine can call Merced Ridesharing to get free commuter matchlists so that they can carpool with people who have similar commutes.

Bicycling and walking continue to grow in popularity due to their health benefits and recreational value. For some, these sources are their only mode of transportation. Currently there are a little over 200 bicycles registered with the Gustine Police Department. There are no predominant bike routes identified in Gustine.

The Gustine Airport is located approximately 1.5 miles east of the main city area, adjacent to Highway 140. The airport is classified as a General Aviation, Basic Utility Airport by the Federal Aviation Administration. The runway length is 3,200 feet and its width is 50 feet. Twenty-Five aircraft are currently based at the airport with 15,475 operations occurring in 1990. Agricultural spraying operators are permitted to use the facility and account for less than 50% of the traffic. The nearest commercial aviation service is in Merced.

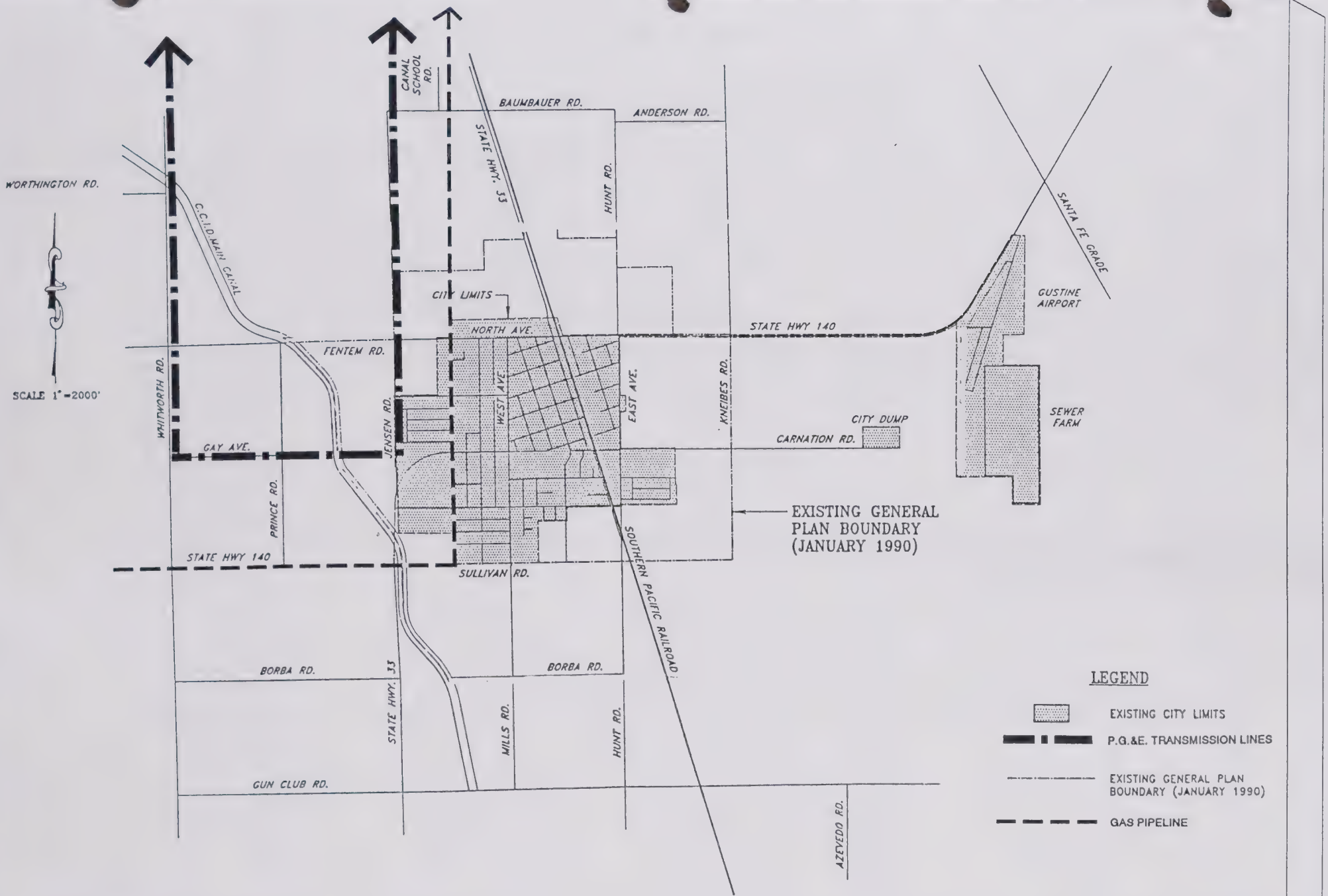
The Airport is served by the Gustine Airport Commission which makes recommendations to the City Council on Airport matters. Land use regulation around airports in the County is regulated by the City and the Merced County Airport Land Use Commission. The City has received a grant for funds to update its Airport Land Use Plan.

#### Other Infrastructure

There is an electric substation in Gustine, major (60 KV) electric transmission lines, and a natural gas mainline running through the planning area (for location see Figure 11). These transmission and pipe lines run parallel with existing transportation corridors minimizing the effects on land use activities.

Gustine has one major Central California Irrigation District canal just west of the City Limits; the CCID Main Canal. There are also two smaller canals; a community ditch which runs parallel to North Avenue and the CCID pipeline which runs parallel to Meredith. Both are used for irrigation during summer months and drainage during the wet season. Portions of the community ditch are also pipelined.

There are two components to the City's water system, supply and distribution. Currently, domestic water is supplied from two of the City's four wells (for well locations and distribution system see Figure 12). Groundwater is treated with a small amount of chloride at the well head and water quality has remained good with the exception of nitrates. Well number three, in the northern part of the city, was shut down because nitrate levels were approaching the minimum State standards. Well number two has also experienced increasing nitrate levels. Well number four was rendered virtually inoperable with the collapse of its clay walls. Current average daily use per capita is 260 gallons, or 1,100,196 gallons per day. The current system fulfills domestic use, but falls short of meeting fire flow requirements. Three more wells are currently needed, however this number could be reduced to one, if Wells Number 2 and 3 had adequate auxiliary power and if Well Number 3 had an improvement in its nitrate problem. The addition of a half million gallon storage facility would further offset the need for additional wells until future growth occurred.



PG&E Transmission & Pipe Lines

Figure 11





Existing Water System

Figure 12

It has been determined through modeling which segments of the existing water distribution system need improvement and where new lines will be required for future development. The City favors the creation of a "loop system", proposed by the City Engineer, which will improve overall distribution and pressure (see Figure 13).

Gustine's Wastewater Treatment Plant (WWTP) has been in and out of compliance with Federal and State discharge limits for the past two years. A self imposed building moratorium and the addition of aeration pumps to the treatment system have resulted in consistent compliance since February 1991. However the system has not yet been evaluated through the winter months, a period when it receives its greatest discharge from local industry and is least able to reduce the biological oxygen demand (BOD).

City officials estimate an average daily flow of 1 to 1.2 million gallons per day. The current surplus plant capacity is 130,000 gallons per day, 47,000 gallons of which has been reserved for new industry and approximately 83,000 for 355 new homes. The existing major collection facilities are depicted in Figure 14.

If the City is successful in receiving a replacement grant from EPA and a relaxation of federal and state discharge requirements it will consider the expansion of its existing system. However an alternative for WWTP expansion and discharge has been selected for further study (for location of Waste Water Treatment Plant study area see Figure 15). The alternative replaces discharge to Los Banos Creek, with a land application through a system of aeration ponds, facultative ponds, storage and discharge to seasonal wetlands and pasture.

The relatively flat topography of Gustine inhibits storm drainage, which subsequently constrains community growth. The philosophy of the design was to grade streets to drain toward the lowlands to the east through pipelines and canals. North of North Avenue there is an absence of an adequate drainage system. The community ditch which is used to transport drainage runoff to the east was designed for irrigation purposes and grows smaller to the east. This is a limiting factor in its adequacy for drainage use.

#### **4.0 Future Conditions**

##### **Streets and Roads**

Throughout the twenty year planning period automobile and truck transportation will continue to be the primary mode for moving people and commodities in and through Gustine. As development occurs traffic is expected to increase by an additional 86347 average daily trips in 2000. These will be generated by various land uses but will be primarily commercial.



Proposed Water System Loop

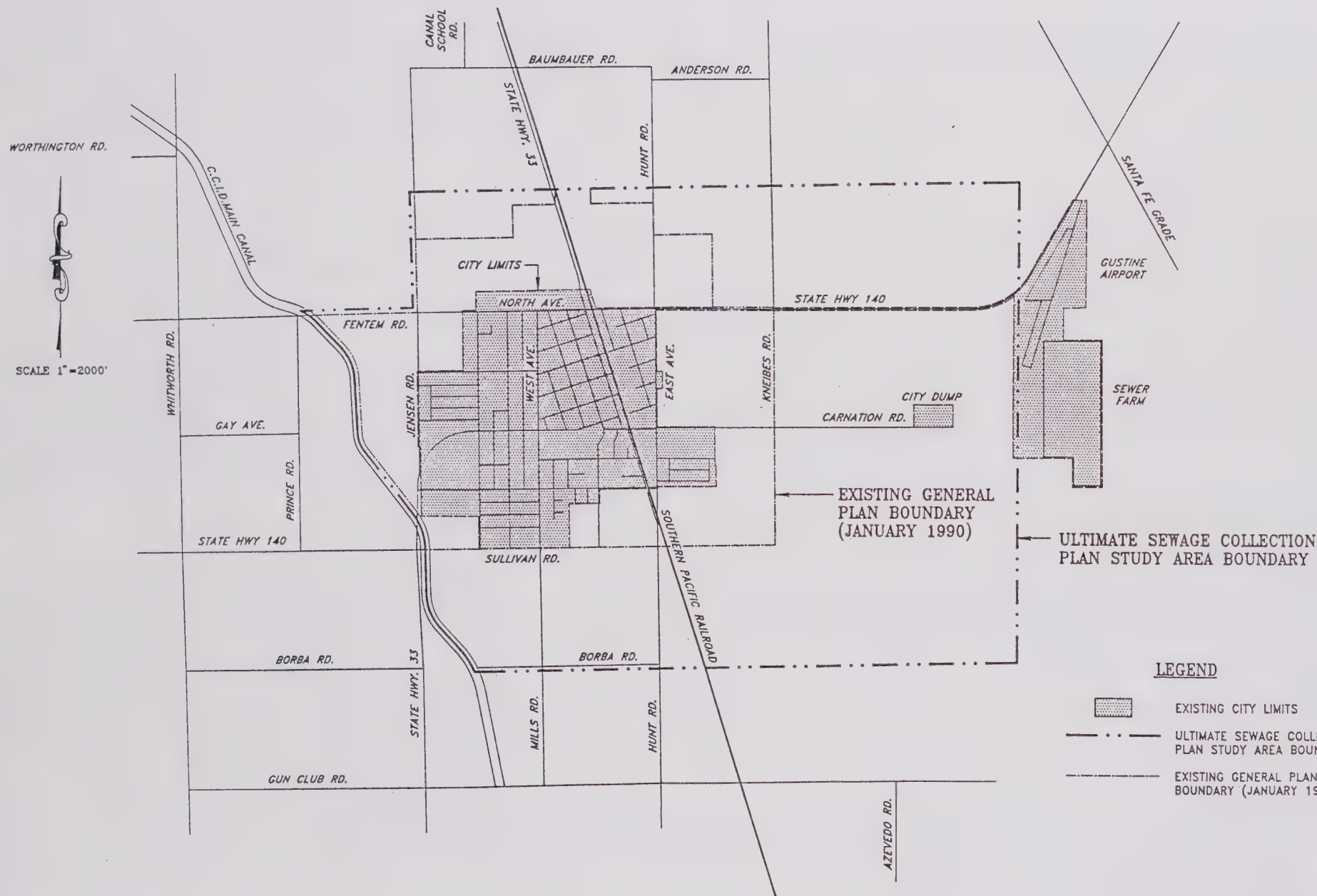
Figure 13





Existing Major Collection Facilities

Figure 14



**WWTP Expansion Study Area**

**Figure 15**

As the population continues to grow, so too will average daily traffic volumes. In the year 2010, 124,260 additional trips will be generated, totalling 210,607 trips over the next 20 years. Appendix A-2 describes where traffic will be generated through each ten year phase. Appendix A-3 describes how traffic volumes were calculated. The relationship between land use and circulation cannot be over-emphasized and the transportation objectives in this chapter are predicated upon the land use designations identified in the Proposed General Plan map (see Figure 5). It is also possible that land use designations could be amended (whether initiated by the City, County or private development) which would affect the function of a road and require changes to this Circulation Plan.

The location and classification of roads within the Gustine SOI will be those necessary to accommodate future land uses designated on the Proposed Circulation map (Figure 18), which would serve the City through ultimate build out. The City Council believes a new east/west road is needed North of North Avenue to relieve the future congestion from planned residential development. The City still advocates the designation and extension of Sullivan Road as an Arterial between State Highway 33 and Kniebes Road. Traffic modelling has demonstrated that the Sullivan to Kniebes Road loop will significantly reduce through town vehicle trips during the planning period.

The City recognizes that future growth will increase the need to provide parking space for automobiles, buses and trucks throughout its Sphere, particularly in its downtown commercial area. One option that Gustine will pursue is to create some public parking as an objective of its Redevelopment Agency.

#### Alternative Transportation Modes

As the cost of operating a vehicle becomes more expensive and as jobs are provided closer to housing, more people are expected to switch to passive modes of transportation which include: transit, ridesharing, biking and walking.

MARTS expects transit ridership to grow enough to justify a fixed route system by the year 1995. Transit ridership should increase by 140 to 200 riders per day in the Gustine area over the next twenty years. This may be attributed to population growth, higher fuel costs, and the implementation of additional MARTS services. At that time MARTS administration envisions a more comprehensive route system and the elimination of the Dial-A-Ride system.

On behalf of the City, Richard Harding of Aries Consulting has applied for a grant to fund the preparation of an Airport Land Use Plan.

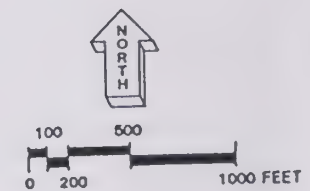




# CIRCULATION MAP

## LEGEND

- LOCAL STREETS
- COLLECTOR STREETS
- ARTERIAL/HIGHWAYS
- - - CITY LIMITS
- SPECIFIC URBAN DEVELOPMENT  
PLAN BOUNDARY



Prepared by:  
Merced County Association of Governments

Figure 16





## Other Infrastructure

Future development will necessitate the rerouting of some transmission lines and may require an additional P.G. & E. substation.

There is no immediate need to abandon any of the canals as a result of development of agricultural parcels within the Gustine So. However, many cities do require the undergrounding of drains and canals as urban development replaces agricultural land. This reduces safety hazards, minimizes any disruption to local road networks and increases canal efficiency. This solution is costly however, and unless the CCID changes its policy, development adjacent to canals will only be required to fence off their areas. Where the decision is left to the City, it will encourage pipelining canals. It is also in the best interest of the City to pipeline canals at roads where bridges are in need of repair or expansion. The City will work with CCID on this matter to arrive at a satisfactory solution.

Sufficient water supplies, sewage treatment systems and storm drainage facilities are basic necessities for serving urban areas. According to population projections to the year 2010, water demands could be as high as 3.19 million gallons per day. The addition of a 12" water line around the city (the loop system) would meet future domestic and fire flow needs. Figure 13 shows existing water lines and future expansion lines.

The Wastewater Treatment Plant expansion plan when complete will provide capacity to support the planned growth through the year 2010. The current facility will exceed capacity during 1998 according to population projections. Additional demands for waste water capacity over the next twenty years, for industrial and non-industrial uses are projected to be 2.9 million gallons per day, bringing the total capacity needed to 3.9 million gallons per day.

Figures 17 and 18 show existing sewer lines and future interim and ultimate expansion. The expansion should be completed by December 1997 in order to accommodate projected growth. Additional industrial wastewater flows will also affect the date that expansion may be necessary. Industrial discharge rates should be monitored by the City to ensure adequate capacity. The City should expedite the purchase of land for expansion with the use of connection fee monies.

Future development will create additional runoff as open land is built up. Just how much run-off is unknown, and would have to be calculated by an engineer on a project by project basis. As growth occurs it will expand the total area from which run-off will flow, extending far beyond the current city limits and encompassing nearly the entire Sphere by 2010. The Grasslands









Water District (GWD) has recommended that the City monitor storm water quality on a regular basis and filter trash and contaminants (such as oil and grease) from storm water before it is released to the CCID canal system. To accomplish this, and also to prevent contaminants from entering the drainage basin, a trash rack and filter will be required at pump stations. "Community" irrigation ditches can be used for storm drainage as well.

## **5.0 Impact Analysis**

### **Streets and Roads**

Urban growth as characterized in the Land Use Element will result in significant levels of vehicular trips on City streets and roads. Traffic Analysis indicates that average daily trips will increase as depicted in Table 7. The changes in traffic volumes will result in the redesignation of city streets in order to maintain a level of service (LOS) C or better (see Table 8).

Just as levels of service are important for maintaining free vehicular movement, so too are terminals (off-street parking) for providing adequate space to stop and conduct business. The reduction of curb side parking also improves the free flow of traffic. A parking problem already exists in downtown Gustine and with the addition of 8206 more people by the year 2010, problems will multiply.

The City has several road maintenance projects which it has identified in the Regional Transportation Improvement Plan. The City does not yet have a pavement management system (PMS), consistent with the California Streets and Highways Code but is working to implement one (refer to Figure 10). A PMS is a program set up by the City to ensure that local streets are adequately maintained. This is accomplished by assessing street conditions and scheduling maintenance based on assessment findings. The program also includes budgeting and identifying financial sources for improvements.

### **Alternative Transportation Modes**

As stated earlier, there are 200 bicycles registered with the Gustine Police Department. Most bicycle trips are by children to school and are recreational in nature. The predominant local routes will be integrated into the proposed Bike Route Network with the adoption of this plan (see Bike Route Master Plan, Figure 19 or refer to the Open Space/Conservation Element for more information).

TABLE 7

## ESTIMATED PHASED TRAFFIC VOLUMES BY STREET

ROAD	TRAFFIC VOLUMES BY LOCATION BY YEAR		
	1990	2000	2010
East Ave. (btwn. 3rd Ave. & Hwy.140)	2960	3361	4664
Third Ave. (btwn. Fourth and Fifth Sts.)	1562	2601	3195
Sullivan (& extension) (btwn. Hwy 33 & Laurel)	677	2789	4726
West Ave. (btwn. North & Lucerne Aves.)	314	251	
North Ave./Fentem Rd. (btwn. Linden & West Aves.)	1058	1044	2858
North Ave./Fentem Rd. (West of Jensen)	**	915	2075
West Ave (@ Wallis Ave.)	1180	1079	1413
Linden Ave (btwn. South & Meredith Aves.)	380	863	1089
Meredith Ave. (btwn. West & Linden Aves.)	545	571	627
Kniebes Road (btwn. Sullivan ext. & Hwy 140)	211	3016	4511
Jensen Road (south of Lucerne)	512	879	943
Fifth Street (btwn. Third & Sixth Aves.)	1044	1505	2417
Lucerne Ave. (btwn. Linden & West Ave.)	664	1655	1978
Carnation Road (btwn. East Ave. and Kniebes Rd.)	169	965	1065
Hwy 33 (btwn Hwy 140 & Stan. Co. Line)	7100*	13000	23289
Hwy 33 (S. of Hwy 140, south junction)	5100*	6196	8459
Hwy 140 (W. of Hwy 165)	2050*	10494	11125
Hwy 140 (E. of Hwy 33, south junction)	4200*	3206	6752

\* Caltrans 1990 traffic estimates.

\*\* No Current counts or land use changes at that time.

Source: CALTRANS, Traffic Volume Counts 1990  
MCAG, Traffic Volume Counts 1990 and Traffic Model  
Projections, 1991

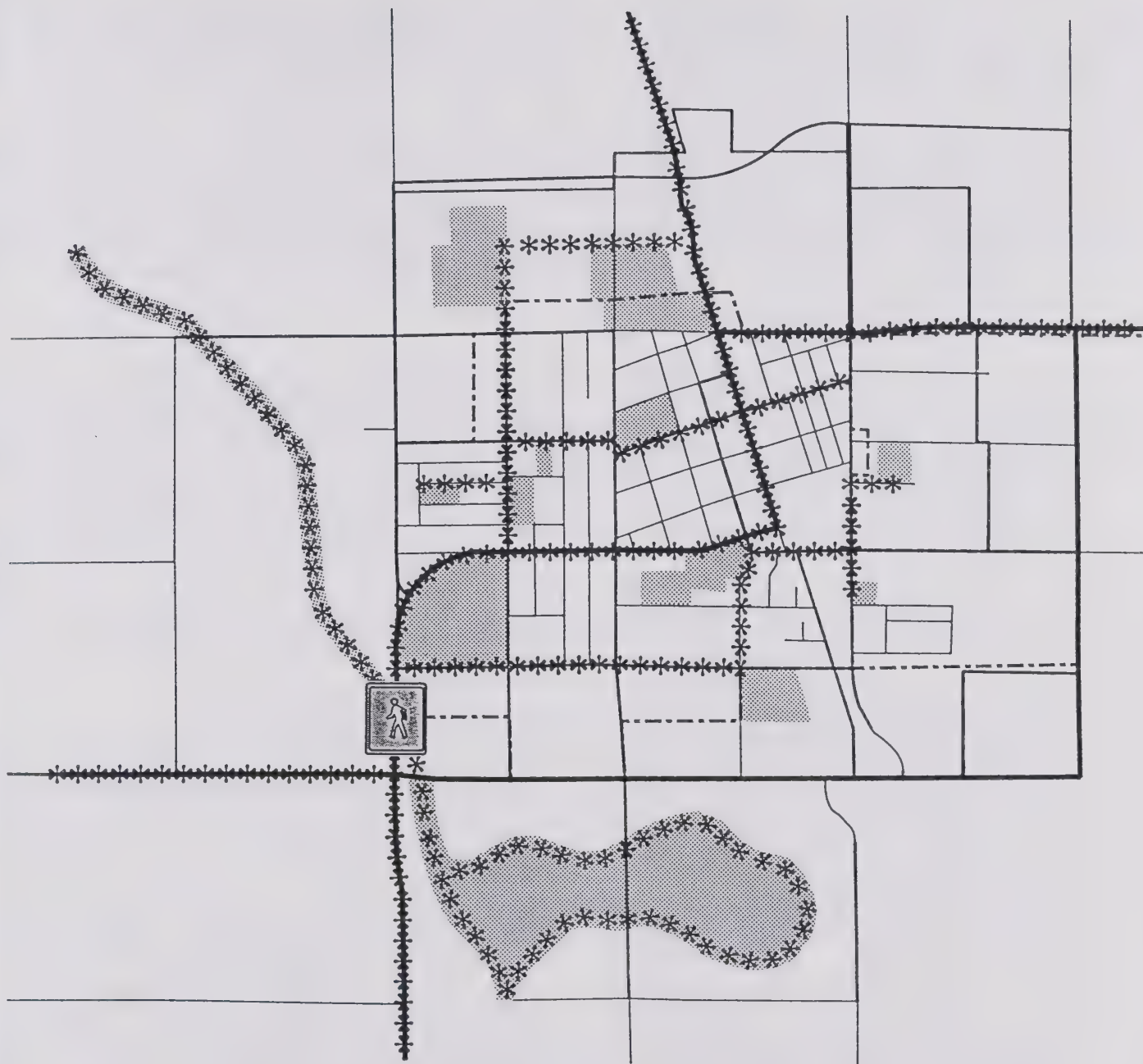
TABLE 8

## STREET DESIGNATION CHANGES

STREET	1990 DESIGNATION	1990 LOS	2010 LOS	W/ CHANGED DESIGNATION	2010 LOS
East Ave./Hunt Rd.	collector	A	A	collector	A
Third Ave.	collector	A	A	collector	A
Sullivan	arterial	A	A	arterial	A
West Ave.	collector	A	A	collector	A
Fentem Rd.	collector	A	A	collector	A
Linden Ave	collector	A	A	collector	A
Meredith Ave.	local	A*	A	local	A
Kniebes Road	collector	A*	A	arterial (Truck Route)	A
Jensen Road	collector	A*	A	collector	A
Fifth Street	collector	A*	A	collector	A
Lucerne Ave.	collector	A*	A	collector	A
Carnation Road	collector	A*	A	collector	A
Hwy 33	highway	A	A	N/A	A
Hwy 140	highway	A	A	N/A	A

\* no current traffic counts to verify 1990 LOS.





### LEGEND

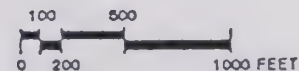


PED/BIKE CROSSING

\*\*\*\*\* BIKE ROUTES



SCHOOLS, PARKS, & OPEN SPACE



**Proposed Bike Route Masterplan**

**Figure 19**

Currently transit riders in Gustine are Dial-A-Ride passengers. In the future MARTS plans to eliminate the Dial-A-Ride service and provide fixed route service. Important factors contributing to the future success of a fixed route system are the location of bus stops and public awareness.

The Gustine Airport provides another option for Bay Area Commuters who are relocating. The airport is also an attractive feature for businesses and industries which are already located within, or are considering, a Gustine site. As Airport use increases with population growth, facilities may need to be expanded or improved.

#### Other Infrastructure

The issues affecting the placement and/or relocation of additional transmission lines are aesthetics, the possible reduction of usable land, and the safety of surrounding residents. In order to reduce visual impacts, transmission lines rated below 45 KV should be undergrounded when possible; this also reduces maintenance costs. The placement of distribution and transmission lines, whether underground or above, affects the use of land by restricting the placement of most structures within utility easements. The use of large amounts of land for public utility easements also removes land from the tax rolls. The safe placement of transmission lines and towers reduces and/or eliminates hazards between structures, crop dusting activities and airport approach zones.

Demand for additional electric service will occur with the residential, commercial and industrial growth projected in the Land Use Element. P.G. & E. has indicated that electricity and gas are readily available to accommodate growth throughout the entire San Joaquin Valley through the year 2010 and beyond. Depending on the location of growth, another substation may be warranted.

It is estimated that one well is required for each 300 dwelling units (depending on pumping parameters), and there is currently a shortfall of three wells. By the year 2010 an additional 3161 dus will require the construction of 11 new wells. The City has indicated that it may begin looking into obtaining a supplemental water supply from the California Aqueduct, as future development may require an additional means for obtaining water. A new storage facility is also recommended, especially because of Gustine's experience with past well failure. To fulfill current needs and provide for additional demands, a 12" water line has been proposed to circle the City. A four mile loop would run along North Avenue, Jensen Street, Sullivan Avenue, and East Avenue. Existing lines, at least major (8" and 10") lines will be tied into this system.

The Waste Water Treatment Plant expansion will provide adequate capacity through 2010. It is estimated that use of wastewater facilities to serve Gustine over the next twenty years will require the treatment of 3.9 million gallons of effluent per day. Current



facilities with aeration may only be adequate for the next few years. It is hoped that long term expansion will be completed so that future development is not held up due to an inadequate Wastewater Treatment Facility. Industrial users need to be monitored through a permit system, so that plant capacity will be recorded, and additional capacity will be paid for on a fair share basis. Portions of the Linden Avenue 8" main (643 linear feet) between Lucerne Avenue and State Highway 33 may possibly need to be replaced with a larger diameter pipe to accommodate development. Additional major East/West trunk lines are needed along State Highway 140 and Sullivan Road (extended). These trunk lines will provide service to accommodate future growth to the north and south. For more information see Chapter I: Land Use.

The City recognizes that it needs to complete a Storm Drain Master Plan and begin to provide drainage facilities. Before development can occur, drainage zones need to be identified for the entire planning area. The City should also acquire detention basin sites, implement a staged program for the construction/maintenance of pipelines and pump stations as local development occurs, and adopt a drainage fee schedule ordinance.

## **6.0 Goals, Objectives and Policies**

**Goal I      To develop a circulation system which provides for the safe and efficient movement of people and goods throughout the city, while being aesthetically pleasing.**

A comprehensive approach to the maintenance and extension of the City's roads through existing development and into new areas will facilitate the free movement of traffic during the planning period. Funding sources to accomplish this goal need to be identified as well. Since the City wants to attract retail consumers and new residents, aesthetic design should be emphasized.

### **Objectives:**

**A. An arterial and collector system providing a minimum level of service "C" for the City's SOI area throughout the planning period.**

By ensuring a level of service "C" on the City's arterials and collector streets, it provides for free movement of vehicles throughout the City.



- B. Sullivan Road improved to serve as major east-west thoroughfare by 2000. East-west collectors, Fentem Rd./North Ave., Lucerne Ave., and Meredith Ave. to be improved by 1995, and a new east-west collector north of North Ave. which connects Jensen to Kniebes Road (crossing Hwy 33 and SPRR tracks) to be completed 2005.
- C. Kniebes Road and East Avenue improved to serve as major north-south thoroughfares by 2000. North-South collectors, Jensen Road, Linden Ave., and West Ave. to be improved by 1997.

Currently these streets do not meet City standards as either collectors or arterials but will need to in the future to accommodate new land use and promote a free-flowing circulation system.

- D. Sullivan and Kniebes Roads will also serve as a truck route.
- E. Highways 33 and 140 improved/widened throughout the SOI area by 2000, and access points will be minimized.

As traffic increases in the future the demands on State Highways 33 and 140 will increase making it necessary that R-O-Ws and road quality are appropriate for traffic flows.

- F. A pavement management program for city streets to be implemented by 1993.

The City will undertake a Pavement Management System (PMS), consistent with the California Streets and Highways Code, as an objective of this General Plan. The PMS would consist of an inventory of existing pavements, condition assessment of pavements, identification of sections needing rehabilitation or replacement and a determination of budget needs. A simple record keeping system such as this will enable Gustine to better anticipate their transportation budget, prioritized needs and be eligible for federal aid and State transportation dollars.

- G. Promote aesthetically pleasing park strips all along Highways 33 and 140, and at the entrances to the City.

This will provide an aesthetic quality necessary for attracting commercial businesses, shoppers and new residents to Gustine.

- H. Adequate off-street parking for all urban uses by 1997.

This is necessary to solve the already existing downtown parking problem.

### **Policies:**

- 1) Coordinate street planning with Merced County to insure the orderly development of a coordinated street network within the planning area.

The City only has planning authority over the area within the city limits, so by working with the County and making County planning officials aware of the City's future growth this will ensure that new development under the County's jurisdiction is consistent with the City's General Plan.

- 2) Develop streets prior to Land Use development in a manner consistent with other infrastructure.

By developing streets consistent with the Land Use Objectives and Policies of this plan, growth areas will be provided with sufficient circulation to support future traffic flows.

- 3) Utilize traffic control devices to control the flow of traffic on streets in accordance with the planned function of the streets.

In the future, because of increased traffic flows, arterial and collector intersections may require stop lights or other traffic flow devices to keep traffic moving.

- 4) Require new subdivisions to be designed to minimize the number of lots fronting on arterial streets and highways.

Arterial streets have the highest amount of traffic next to State Highways 33 and 140, and may be designated as truck routes. Minimizing lot frontage and driveways promotes a safe and free flowing circulation system.

- 5) Locate and maintain appropriate truck parking along the designated truck routes within the City, along Sullivan and Kniebes Roads.

This could discourage intrusion of truck traffic into residential areas.

- 6) Require the construction of full-width streets as a condition to the approval of subdivisions.

The City will require new streets to meet current city standards to ensure consistency and ease of movement.

- 7) Establish a circulation improvement development fee program to pay for improvements necessitated by future development.





The City will require, as a matter of policy, a circulation improvements development fee and developer financing for needed new road improvements.

8) Require project-by-project traffic impact analysis for all projects of significance (as specified by a minimum size in dwelling units, acres, square feet of floor area or estimated number of trips generated). Traffic impact analysis shall also be conducted to determine cumulative impacts of projects pending simultaneous approval.

This will provide the information necessary to determine the developers fair share of new construction.

9) A transportation conservancy should be established to set aside land for right of way before growth occurs.

This will minimize negative impacts to existing land uses.

10) Routinely refer development applications for projects abutting State Highways 33 and 140 to CALTRANS for review.

This will ensure that adequate ROW is maintained for the State Highways.

11) Coordinate the implementation of a pavement management program with the Merced County Department of Public Works and/or MCAG.

Merced County Public Works has an ongoing Pavement Management System program which may be applicable to the City of Gustine.

12) Routinely require landscaping plans as part of development applications for properties adjacent to the State Highways and Sullivan Road.

This will provide for an attractive buffer between busy roads and adjacent land uses.

13) Require off-street parking with all new commercial and industrial development and with expansions of existing commercial and industrial development. The latter may be pursued through the City's Redevelopment Agency in order to provide for public parking.

This specifically addresses the uses which require the most parking and is intended to eliminate future problems.

**GOAL II     To develop a circulation system which provides for a variety of transportation modes.**

There is a need among students, elderly, handicapped and long distance commuters to be provided with alternative transportation modes. As these populations increase with general growth, additional services will need to be provided.

**Objectives:**

- A.** A system of bicycle routes/racks and pedestrian paths with new and existing development throughout the city by 2000.

The current bicycle circulation system is inadequate. However a bike route system can address this inadequacy and provide safe bike/pedestrian travel throughout the City.

- B.** Satisfaction of the "Unmet Transit Need" through agreements for service with MARTS or Stanislaus County for the Gustine planning area through the year 2010.

This is necessary to ensure that the City receives funding to provide the needed transit service.

**Policies:**

- 1) A bikeway plan will be prepared to encourage trips between residential areas, schools and commercial areas.

The emphasis would be to place paths within CCID canal right of ways where possible and would connect existing and future residential areas to parks, schools and commercial uses. The State Bike Route would be tied into this system. The path should also be developed to benefit walkers and joggers.

- 2) New Development proposals will include Bike Route Right-of-Way where included in Bike Route Master Plan.

This will help ensure the construction of the proposed bike trail system.

- 3) The City will continue to support and coordinate with MARTS and/or Stanislaus County for intercity transit services.

MARTS could be a cost effective transit provider.

- 4) The City will review unmet transit needs on an annual basis.

This is an annual requirement to receive Local Transportation Funds (SB 380).

5) Before Dial-A-Ride service is eliminated the needs of Gustine residents will be examined.

This will ensure that a valuable service is not eliminated.

**GOAL III To provide an adequate system for the transmission and distribution of energy, and information.**

In the future growth will demand that infrastructure services increase.

**Objectives:**

A. That energy and communication transmission and distribution lines are adequately provided for within existing and future right-of-ways and easements.

Additional needs will become a reality as population grows and the City's boundaries expand.

**Policies:**

1) Routinely notify P.G.& E., telephone and cable companies of development applications effecting their facilities.

This will ensure that services can be provided prior to development approval.

**GOAL IV To provide adequate water, sewer, and drainage facilities to meet the current and future needs of the Gustine Planning Area, in a manner that preserves lands of environmental significance.**

In the future, growth will demand that City infrastructure be expanded. This has been determined through our Land Use and Population analysis.

**Objective:**

A. That systems for sewer collection and treatment, water distribution and storm water collection exist within designated areas within the Gustine Planning Area.

This is necessary for the health and welfare of the residents of Gustine and the expansion of services should be phased with development.



### **Policies:**

- 1) Wastewater treatment Plant expansion to occur during or before 1997 - as capacity dictates.

According to population projections residential development would require the plant to be completed in 1997, however additional industrial flows could fill capacity sooner.

- 2) Systems should have capacity to serve resident population growth through the year 2010.

As systems are expanded they should provide for continued expansion to support future growth throughout the proposed Soi.

- 3) Prepare and update annually a five-year CIP for water, waste water and storm drainage, which includes systems maintenance and capacity enhancement.

This will ensure that infrastructure is available to support growth as it occurs.

- 4) Annually review and adopt a development fee program as required for water, waste water and storm drainage improvements associated with new development.

This will cover the costs of new lines, pumps etc. necessary to provide the additional service.

- 5) Annually review and adopt systems user fee programs to include costs of system maintenance.

This will divide the maintenance cost among all users.

- 6) Establish a permit system for Industrial users of the Waste Water Treatment facility.

This will help the City to keep current on available capacity and oblige industry pay for its fair share of the costs.

- 7) Expedite the purchase of land for Wastewater Treatment Plant Expansion through use of connection fee monies.

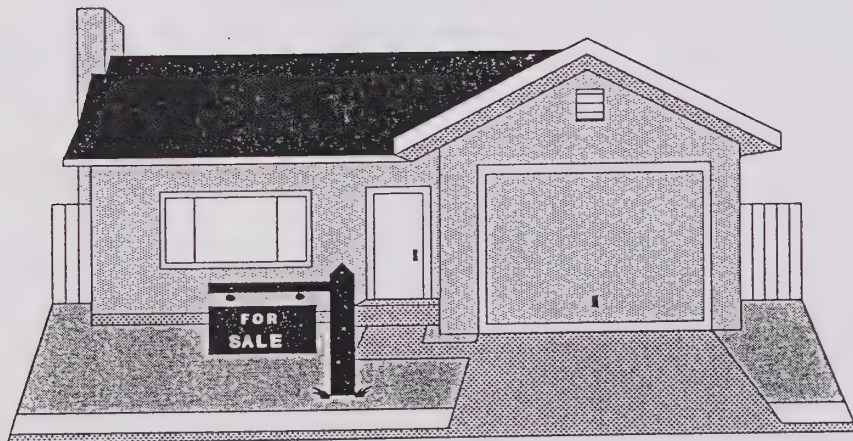
This will insure that land is available when needed in case expansion needs to be moved up due to capacity constraints, and it should prove to be more cost effective to purchase land sooner.

- 8) Establish assessment districts for maintenance of storm drain facilities.

This will be based on revised drainage zones to cover maintenance costs.

- 9) The City's Stormwater Management Plan will adopt and implement the most stringent State Water Resources Control Board and U.S. Environmental Protection Agency standards for fresh water aquatic and wetland systems.
- 10) Run-off will be monitored through Bioassay analysis and properly treated to protect fresh water aquatic life.
- 11) A study to assess the potential to use the wastewater treatment alternative IIAI for storm water filtration and detention will be completed by 1995.

# III - Housing





## CHAPTER III: HOUSING ELEMENT

### 1.0 Introduction and Purpose

Local governments are required to adopt and periodically update the Housing Element of their General Plan as stated in California Government Code Section 65302(c). The guidelines and requirements for Housing Elements are further defined by the California Department of Housing and Community Development (HCD). The Housing Element was last revised in 1985, and became obsolete in 1990. The City subsequently amended its Housing Element for the interim period July 1, 1990 to June 30, 1992. The planning period for this Housing Element Update is from 1992 to 1997.

The Housing Element is integrated with the rest of the general plan and recommends land use and development controls consistent with the land use and circulation elements. This element promotes the utilization of appropriate Federal and State financing and subsidy programs to meet the needs of low and moderate income households. It also recommends the number of housing units that should be constructed, rehabilitated and conserved over a five year period until its next revision.

This Element identifies and analyzes existing and projected housing needs and states the goals, objectives, and policies for the preservation, improvement and development of housing in Gustine. The element also identifies adequate sites for rental housing, factory-built housing, and mobile homes with the needs of all economic segments of the community in mind.

The Gustine Housing Element is also designed to protect the environment (consistent with CEQA) while providing opportunities for growth to take place. The City routinely requires environmental assessments of individual projects.

### 2.0 Methodology

The 1985 Housing Element and 1990-92 extension, were used as the foundation for this housing element update. This update uses 1990 census data, current regional projections, and incorporates more recent legislative changes in housing element and State planning law.

The land capability/suitability analysis (Land Use Element) was used to determine the relative locations for high, medium and low density residential land uses and their proximity to employment centers, schools and other services.



The Gustine Housing Element has considered the City's fiscal and environmental characteristics in determining the extent to which it is able to participate in the regional housing need. Given the financing available, price of land, and cost of construction this element endeavors to plan cooperatively with other local governments but, at the same time, works to preserve the City's character.

## Public Participation

Gustine initiated an effort to involve people from all economic segments by running front page articles in two local newspapers and by conducting a citizens workshop early in the update process. Housing surveys were distributed to the general public during the initial workshop and from City Hall during the course of the update. Interested persons were invited to participate in study sessions and public hearings which continued on a regular basis throughout the development of the housing element.

## 3.0 Existing Conditions

### Households

At the time of the census, there were 3931 people living within the Gustine City Limits. There were 1523 occupied housing units (households) and 60 vacant houses three of which were boarded up. The MCAG Regional Housing Needs Plan reports a 1990 population of 4274 people by including those living within the City's Sphere of Influence (SOI). New construction was slow during 1991 and 1992 with only 18 new housing units built (increasing the population to 3991). The City did however annex 116 acres and approved three major tentative maps.

Gustine is comprised of approximately 63% owner occupied units, 34% renter occupied units and has a 3% vacancy rate. The summer rental vacancy rate is sometimes less than 1% because of the migrant farm worker influx in Gustine.

### Cost of Housing vs. Ability to Pay

In 1990, the City's median home value was \$94,500. The median contract rent was \$303 per month. According to 1990 census data, over 266 (49%) of the renter households in Gustine paid 25% or more of their gross income for rent and of those, 258 had household incomes of less than \$20,000. There were 263 (30%) owner households that had selected monthly payments greater than 25% of their income and of these, 93 earned less than \$20,000.

Household income is a crucial factor in determining the type and condition of housing in which people live. According to the 1990 U.S. Census, the Gustine median per capita income was \$14,303 per year, compared to \$10,606 for Merced County and \$16,409 for the State of California.



The 1991 MCAG Regional Housing Needs Determination estimated 373 City households or 22.7% in the "Very Low Income" category (less than \$ 12,774 - not exceeding 50% of the County's median income) and 275 households or 16.7% in the "Low Income" category (\$12,775 to \$20,438-between 50% and 80% of the County's median income). Upon further investigation, the City of Gustine has decided that there is more current information upon which its share of the regional need should be based. The State Department of Housing and Community Development (HCD) has published new income limits which, when combined with 1990 census data shows 429 households within the City and SOI earning less than \$15,750 (very low) and 216 households earning between \$15,750 and \$25,200 (low income). The City has chosen to use these numbers and has subsequently recalculated its share of the regional need.

In June 1991 the sale price of homes ranged from \$60,000 to \$160,000. The median sale price for a 1,500 square foot three bedroom, two bath home was approximately \$112,000. Lower priced homes were small, probably one bedroom, which sold for an average price of \$66,000. Local Realtors observed an increase in the price of lower end homes, and a steady price for moderate homes during the last year. Homes under \$130,000 sell quickly, while higher priced homes (some as high as \$230,000) stay on the market longer. Although these homes seem moderately priced compared to other urban areas, providing affordable home ownership for moderate income families in Merced County remains difficult.

Mobile homes provide a more affordable means of home ownership for some households. A new single-wide mobile home (14'x 60') costs between \$25,000 and \$40,000 depending on amenities, while used mobile homes range between \$2,500 and \$40,000. Mobile home spaces currently rent for \$175 per month. There is presently only one mobile home park in the City which is for seniors and has a total of 100 spaces. There are 18 other mobile homes in Gustine, most of which are in the vicinity of the Beatrice Cheese plant and house low income families. If another mobile home park became available, space rental would probably run between \$200 and \$250 per month. Tables 9 and 10 below depict gross rent and house payments as a percent of local income.

**TABLE 9**  
**NUMBER OF RENTER HOUSEHOLDS BY**  
**GROSS RENT AS PERCENT OF INCOME**

Rent as % of Income	<10,000	10,000- 19,999	20,000- 34,999	35,000- 49,999	50,000- or more	Total
0 - 19%	0	12	60	104	19	195
20 - 24%	0	11	30	10	6	57
25 - 29%	21	10	4	4	0	39
30 - 34%	18	43	0	0	0	61
35%+	90	76	0	0	0	166
Not Computed	0	14	0	0	0	14

SOURCE: 1990 Census

TABLE 10  
NUMBER OF OWNER HOUSEHOLDS BY  
HOME OWNERSHIP COSTS AS A PERCENT OF INCOME

Owner costs as % of Income	<10,000	10,000- 19,999	20,000- 34,999	35,000- 49,999	50,000- or more	Total
0 - 19%	17	66	141	114	131	469
20 - 24%	15	21	28	37	38	139
25 - 29%	8	13	21	47	9	98
30 - 34%	0	0	17	14	11	42
35%+	33	39	30	13	8	123
Not Computed	0	0	0	0	0	0

SOURCE: 1990 Census

Rents within the city vary depending upon the type, age, location, and amenities of the units. Rents range from under \$100 a month to more than \$750 a month, the median being \$303 a month (1990 Census). Rents for one and two bedroom duplexes and apartments now range from \$275 to \$365 per month. The typical two bedroom apartment rents for \$360 per month. Rents for two and three bedroom houses range from \$500 to \$800 per month. Meredith Manor has been built since 1985 and is a 40 unit complex with subsidized rents for low income families.

#### At Risk Housing

According to the California Housing Partnership Corporation's 1991 "Inventory of Federally Subsidized Low-Income Rental Units at Risk of Conversion", the City has no "at risk" units during the 1992 - 1997 planning period. There are also no locally-subsidized units at risk, as the City has not issued mortgage revenue bonds, has not approved any density bonuses with financial assistance, does not have an in-lieu fee program, and has not yet assisted multifamily housing with redevelopment or CDBG funds.

There are two multi-family rental units in Gustine that have been mortgaged with Farmer's Home Administration 515 loans. These are the only units assisted under federal, state, or local programs. Although it appears that Gustine Gardens will be at risk of conversion in the year 2000 and Meredith Manor in the year 2008, further investigation has revealed that these are just dates that property owners can request to prepay their 50 year mortgages. If the owners cannot demonstrate that the units will be maintained as affordable housing, Farmer's Home will deny their requests. It is safe to assume that the long term use of these units as affordable housing stock is relatively secure. This will not be taken for granted however, and the objectives, policies and programs of this housing element include efforts to promote preservation through monitoring the status of these projects. More specific information regarding these two developments is shown in Table 11.

CITY OF GUSTINE AT RISK HOUSING UNITS		
PROJECT NAME	Gustine Gardens	Meredith Manor
ADDRESS	394 Wallis Ave. Gustine, CA 95322	385 Meredith Ave. Gustine, CA 95322
OWNER'S NAME	SIRA Enterprises	Gustine Assoc., A CA limited Partnership
ADDRESS		
PHONE		
TYPE OF GOVERNMENT ASSISTANCE	Farmer's Home Administration 515 loan	Farmer's Home Administration 515 loan
LENGTH OF MORTGAGE	50 years	50 years
LENGTH OF AFFORDABILITY CONTROLS	20 years (at least)	20 years (at least)
EARLIEST POTENTIAL CONVERSION *	6/6/2000	12/23/2008
# OF UNITS SUBJECT TO CONVERSION	34	40
TOTAL UNITS IN PROJECT	34	40
TENANT TYPE	Seniors	Family
BEDROOM MIX	1br: 34	1br: 16
	2br: 0	2br: 23
	3br: 0	3br: 1
	4br: 0	4br: 0
RENTAL RATES **	1br: \$441 mkt., \$285 basic	1br: \$478 mkt., \$285 basic
	2br: N/A	2br: \$548 mkt., \$325 basic
	3br: N/A	3br: Mgr. only
	4br: N/A	4br: N/A
DATE BUILT	1980	1988
CONDITION	Good	Good

\* These dates are the earliest dates the owner can request to prepay, however unless the owner can demonstrate that the units will be maintained as affordable housing, Farmers Home will deny the request.

\*\* Exact amount is determined by the tenant's income and the availability of rental assistance.



## Overcrowding

In Gustine 120 households (8% of the City's total) were defined as "overcrowded" in the 1990 census. Of these 92 (77%) were renter households and 28 (23%) were owner occupied households (see Table 12). The Census Bureau defines overcrowding as more than one person per room, not including the kitchen and bathroom. Overcrowding does not appear to be a significant problem statistically, however actual numbers during the summer months are believed to increase with an influx of farm workers regionally.

TABLE 12  
OVERCROWDED HOUSEHOLDS

Persons per Room	Total	Renters	Owned
1.00 or less	1,403	440	963
1.01 - 1.50	70	48	22
1.51 or more	50	44	6

SOURCE: 1990 Census

## Housing Stock Conditions

Housing stock conditions in Gustine are generally good due to active abatement, code enforcement and a Community Development Block Grant (CDBG) Housing Rehabilitation Program. Many of the City's older houses are also located in stable neighborhoods and are maintained by the home owners. Older housing stock can become an important source of housing for low and moderate income people as these houses "filter down" in price. Unfortunately, sometimes many older "filter down" units require substantial maintenance and repair which adds to the "affordability gap" for moderate income households.

A "windshield survey" conducted in January 1990 identified 150 units in need of minor or major rehabilitation. Of these units a sampling showed that 72% were renter occupied. It is believed that the number of substandard units is higher than this and a more comprehensive city-wide survey scheduled for 1993 should confirm this. In 1990, approximately 40% of all units (635) were 30 years old or older (see Table 13). In addition to greater maintenance costs, old homes are usually less energy efficient. The City has no record of rehabilitations that it initiated using CDBG funds between 1985 and 1990.

A Preliminary Redevelopment Survey Area has been defined for Gustine, within which a Redevelopment Plan Area will be delineated. Twenty percent of the annual tax increment from this area will be used to increase, improve, and preserve the housing supply for persons and families of low or moderate income. In these cases the City would use its Planned Community overlay and eventually turn projects over to the Housing Authority or other Residential Management non-profit.

TABLE 13  
CITY HOUSING AGE

YEAR BUILT	TOTAL
1990 (April) to Present	8*
1989 - 1990 (March)	52
1985 - 1988	187
1980 - 1984	128
1970 - 1979	280
1960 - 1969	301
1950 - 1959	194
1940 - 1949	222
1939 or Earlier	219

SOURCE: 1990 Census & City building permit records, asterisk reflects building permits processed

P.G. & E.'s Energy Partners weatherization program offers one form of minor rehabilitation. In an overwhelming response, P.G. & E. educated 980 households and weatherized that many units in late 1992 (the best percentage results achieved anywhere in their system). In the past, the City has actively abated substandard housing, and as a local objective will work to rehabilitate 12 houses each year. The City estimates that no more than one unit per year will become uninhabitable.

An exception to this pattern in the past year has been the Parkside Apartments on South Avenue. Eight of the forty multiple residential units were condemned by the County Health Department and are now being privately rehabilitated. The City is in the process of working with the property owners to resolve problems with other blighted and uninhabitable dwellings. The City intends to use money from a CDBG planning and technical assistance grant it has been awarded to inspect the Parkside Apartments, conduct a more comprehensive city-wide housing condition survey and to prepare an application for a larger CDBG for actual rehabilitation.

#### Public Facilities and Services

The City's engineer and a consulting engineer completed three studies in 1990 which more specifically defined local water and wastewater system needs (see Circulation Element, Section 3.0, Other Infrastructure). The City Council has used the results of these studies to determine hook-up fees and water and sewer rates, the money from which will be used to make system improvements.

One deficiency which has not yet been comprehensively analyzed or funded for improvement is the City's storm drainage system. However this will become a priority during the next two years and before significant development takes place in northern Gustine.



The Gustine Unified School District was under capacity with a 1990-91 enrollment of 1256 students, however it expects to exceed state capacity standards in the 1994-95 school year and District standards during the 1992-93 school year. Therefore the District has begun negotiations with new development for higher school impact fees.

Gustine currently has a 25 member volunteer Fire Department and it also contracts with the County for fire services. The City's Police Department provides adequate service with 6 full time officers, and full time dispatching.

### Special Needs

Residents with special needs in the City of Gustine include the elderly, large families, the handicapped, families with a single parent head of household, farmworkers, and the homeless. Until recently there has been no working relationship between the City and the Merced County Housing Authority. The City intends to enter into a joint powers agreement with the Housing Authority who now oversees three or four Section 8 households in Gustine. During the past few years two low income residential complexes have been managed by Professional Apartment Management (PAM) of San Joaquin County, for residents who must meet FmHA low income criteria. PAM believes there is a need for additional low income housing, as they have nineteen low/very low income families on waiting lists for their facilities.

Households in the City of Gustine which appear to have the most critical needs are the elderly and single parent headed households. Both groups have sizable percentages with very low incomes, coupled with the need for unique housing, (such as larger living units for single parent headed families or accessible community environments for the elderly), these factors sometimes make adequate housing for the two groups difficult. Large family, farmworker, and disabled person households also have special needs, however, their situation is perhaps not as critical as that of the elderly and single parent households.

Another group with special needs, but not as critical a housing situation, is the moderate income family. Such families, even those with a two earner income, often find themselves unable to purchase homes which meet their needs. This is due to relatively low income level averages and lack of new or rehabilitated housing stock.

### Elderly

The elderly group in Gustine experienced above average growth between 1980 and 1990. This group grew by 38% compared to the 25% growth for the entire population during the ten year span. In 1990, 541 (36%) of the City's 1523 households consisted of residents 65 years or older. Of these, 108 elderly householders rented homes. There are two popular senior housing complexes in the City, one of which is the Green Acres Mobile Home Park. The other complex is



Gustine Garden Apartments, a thirty-five unit senior citizen housing development which was built in 1982 by private enterprise with the use of a 515 Federal loan through Farmer's Home Administration. These elderly-designed complexes are a tremendous asset to the City and there will be an increasing demand for more such units in the future. There are currently eight seniors on a waiting list at Gustine Gardens who are in need of this kind of facility.

It is interesting to note that there is a significant number of persons in Gustine who live alone. Of the 378 men and women who do, 232 or 61% are over the age of 65. This indicates that there is, or will soon be, a demand for a convalescent facility, more retirement oriented residential communities or both. The City can entertain proposals for these in any medium to high density residential district using a Planned Community overlay zone. The smaller six person in-home care facilities can be located in any residential district.

### Large Families

In 1990, 154 (10%) of Gustine housing units contained five or more persons, 48% of these were renters. The 1990 census also showed that there were 480 housing units with 6 or more rooms. Based on this information it appears that the majority of housing needs for large households are being met, though these figures are not associated with income.

**TABLE 14**  
**NUMBER OF PERSONS IN HOUSING UNITS 1990**

Persons in Units	Total	Renters
1	378	153
2	522	129
3	234	78
4	235	98
5	85	36
6	50	26
7	19	12
<b>Total</b>	<b>1,523</b>	<b>532</b>

Source: 1990 Census.

### Handicapped

Gustine has a higher percentage of working age disabled now than in 1980. There were 460 people who have some form of limitation or immobility and 370 (80%) of these are actually prevented from working. There are 216 of these people who are over the age of 65 and have either a mobility or self care limitation (Source: 1990 census). Therefore, Gustine will encourage equal access to housing, the construction of low income housing for which the disabled are

eligible and a fair share (20%) of units constructed under the State Rental Housing Construction Program.

### Single Parent Head of Household

Single parent headed families comprised 12.5% of all households in Gustine in 1990, with 143 households (9.4%) headed by females and 47 households (3.1%) headed by males. There are actually more single parent households now than recorded in the last census. In February of 1992 145 families in Gustine received Aid for Families of Dependent Children (AFDC) through Merced County Social Services, of those 86% were female headed households.

In 1990, 96 children who lived in single female headed households lived below poverty level (70% of all children in single female headed households), while all children living with single male headed households lived above the poverty level. Most of the children living below poverty level were under age six. 13% of children under six living with a single mother had mothers who worked, while 70% of children between six and 17 living with a single mother had moms who worked. Family type and presence of related children have been identified in Table 15.

As in much of the surrounding area, single-headed families with children are one of the groups most in need of public assistance. The status of such families have planning implications for housing, child care, recreation programs and schools, and other social services. Gustine recognizes the need for these families to have affordable rental housing, often with three or more bedrooms.

**TABLE 15**  
**FAMILY TYPE AND**  
**PRESENCE OF RELATED CHILDREN**

	<b>All Households</b>	<b>Male Headed Families</b>	<b>% of Total</b>	<b>Female Headed Families</b>	<b>% of Total</b>
<b>With Related Children</b>	544	30	2.0%	93	6.1%
<b>Without Related Children</b>	979	17	1.1%	50	3.3%
<b>Total</b>	1523	47	3.1%	143	9.4%

Source: 1990 Census.

### Farmworkers

Gustine has a migrant farm labor household population during the summer and early fall. The size and needs of this group are difficult to gauge because of its transient nature and the fact that



some of these workers are undocumented aliens. The availability of housing for farm laborers is impacted by the influx of better paid packing shed workers who compete for short term housing. What often happens is that farm laborers "double up" or live in "non-housing" units. This make-do type of farm worker housing is detrimental to the neighborhoods in which it takes place and points to a need for adequate seasonal housing in the County.

The 1991 "Merced County Housing Needs Determination" estimates that 280 assisted housing units are currently needed county-wide (assuming that farmworker's needs are equal to their proportion of the labor force). Since allocation of farmworker households are assumed to be included in each jurisdiction's share of the county need, Gustine will fill its projected need through additional low cost housing units.

Merced County currently has three programs which are specifically directed towards farmworker housing. The FMHA 514 and 516 programs provide assistance to public or private non-profit organizations to develop farm labor housing. The State HCD Farmworker Housing Grant Fund provides matching funds to the same organizations for new construction or rehabilitation of housing. The State Office of Migrant Services operates two migrant farmworker housing centers in the County, one of which is located on State Highway 165 north of Los Banos.

#### Homeless

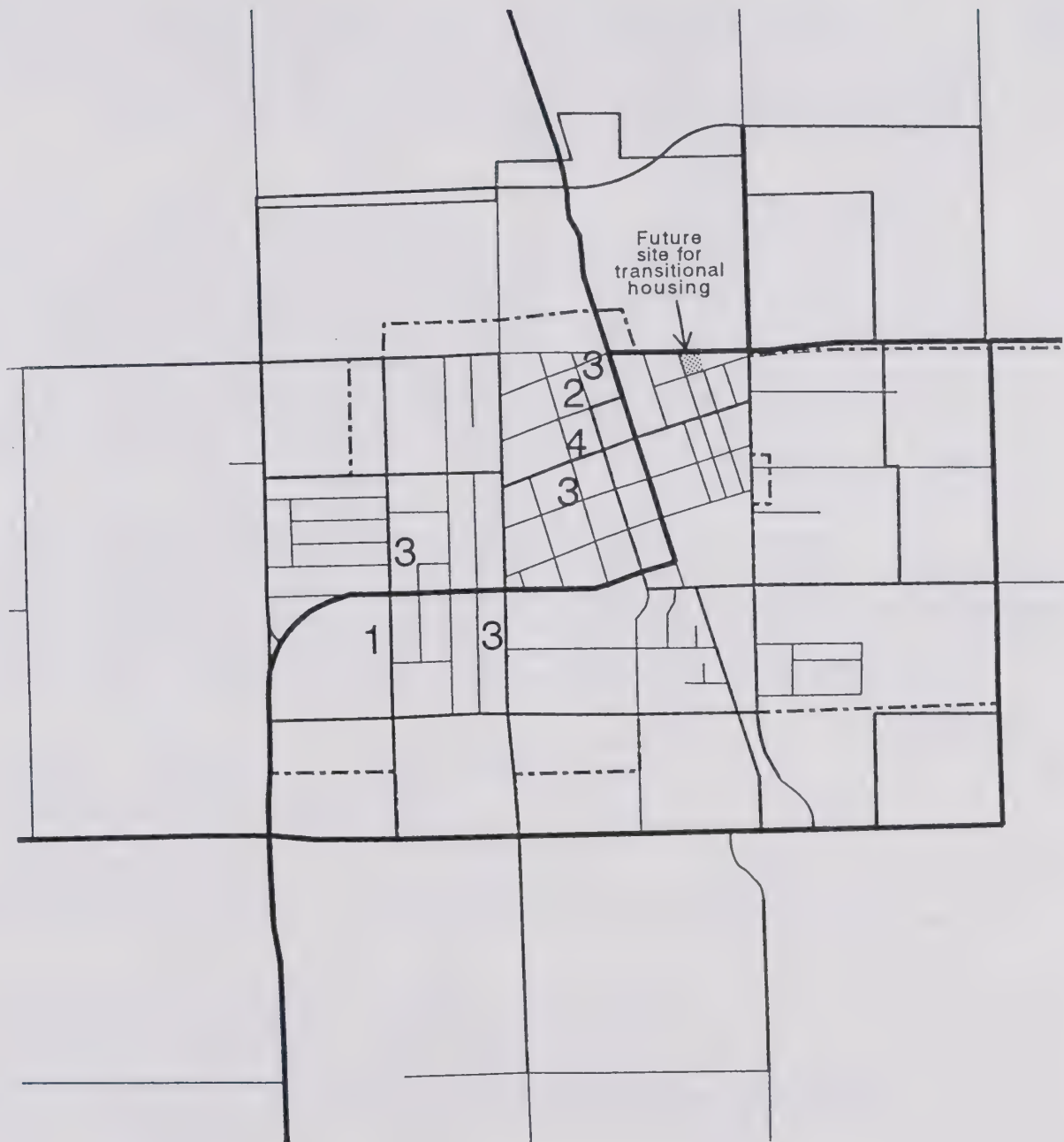
Gustine occasionally has homeless persons however, there is virtually no permanent group living on the street. The Police Department, in cooperation with the Salvation Army, try to find temporary lodging for destitute persons and families. Additional emergency housing and longer term support is provided by the County Social Services Department and local churches and service organizations. In February of 1992 141 persons were given homeless assistance in Merced County through social services - 76 were given motel vouchers because they had no place to stay and the remaining 65 were assisted in paying their deposits associated with first months rent (information was not available for Gustine alone).

In the event that the City proposes or entertains a proposal for emergency shelter or transitional housing, such facilities will be considered in high density residential (R-4) and commercial zones where they are within reasonable access to public agencies and transportation services. Sites which may be adequate for emergency shelters and transitional housing are identified in Figure 20.

#### Persons in Group Quarters

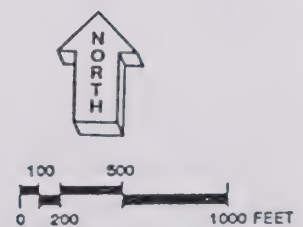
Group quarters refer to two types of living arrangements; one is a living situation where unrelated persons share kitchen and perhaps bath facilities such as a boarding house, and the other situation





LEGEND

- 1 - AL GOMAN CENTER
- 2 - LEGION HALL
- 3 - CHURCH
- 4 - GPS HALL



Emergency Shelter/Transitional Housing Sites

Figure 20

applies to units in which people are cared for and includes facilities such as hospitals, convalescent homes, boarding schools, and prisons. According to the 1990 U.S. Census there are currently no Gustine residents living in group quarters. This could change in the next five years by an aging population who could be served by the development of a convalescent home.

#### 4.0 Future Conditions

The Merced County Association of Governments (MCAG) and the State Department of Housing and Community Development (HCD) have estimated the number of housing units necessary to accommodate the projected needs of Gustine through 1997. Unfortunately, the state and regional agencies were forced to use dated information (1980 census) when making their forecasts. Using more current census and DOF information, and a 4.00% growth rate, the City projects a 1997 population of 5,093 resulting in the need for 493 additional dwelling units from 1992 to 1997.

This figure assumes the need for 41 units anticipated during the 1990-1992 interim planning period although only 8 new homes were built. The City has recently approved two tentative subdivision maps which are expected to add approximately 440 new dwelling units to the City over the next five years. The following tables break down housing units needed by owner/rental identification, income and type (Tables 16, 17 and 18).

TABLE 16

#### PROJECTED HOUSING UNIT NEED BY TENURE 1992 - 1997

Owner Units	Renter Units
321/65.1%	172/34.9%

TABLE 17

#### PROJECTED HOUSEHOLD NEED BY INCOME 1992 - 1997

	Very Low	Low	Moderate	Above Moderate	TOTAL
1990 (RHNP) *	429	216	260	641	1546
1990-1997	16	112	121	167	<u>416</u>
					1962

Source: Regional Housing Needs Plan, April 1991, MCAG. \* Revised by Gustine city staff and based on actual 1990 census data including household income and new HCD income limits dated May 1992. Actual construction need is greater than projected households given respective vacancy rates, removals, etc.

TABLE 18

## PROJECTED HOUSING UNIT CONSTRUCTION NEED BY INCOME/TYPE 1992 - 1997

	Total Units	Res. Estate 5%	Single Family 71%	Multiple Family 17%	Mobile Home 7%
Very Low	20	0	0	12	8
Low	133	0	53	60	20
Moderate	143	0	137	0	6
Above Mod.	197	26	161	10	0
<b>Total</b>	<b>493</b>	<b>26</b>	<b>351</b>	<b>82</b>	<b>34</b>

## Existing and Potential Housing Sites in Gustine

Gustine has adequate land within its proposed Sphere of Influence to easily accommodate residential development needs through 1997. The City of Gustine has a modest amount of undeveloped vacant land within the City limits, approximately 130 acres, which covers a range of residential zoning (i.e. R-E, R-1, and R-3) and could generate about 615 units as zoned. Land within the City limits will yield 11 Residential Estate units, 454 Single Family Residential Units, 150 Multiple Family units, and one half acre of land zoned Residential Professional could serve as a homeless shelter.

All of the areas within the City limits are feasible for development as public facilities become available, however some on-site improvements would be needed. There are roughly thirty four individual lots throughout the City that are immediately available for single family housing development. Another 391 have been approved for moderate (and above moderate) income within the Borrelli Ranch and Brentwood Unit 5 subdivisions yet to be developed.

There are various vacant sites within the city limits zoned for multiple residential use. These areas constitute about 8 acres and are identified by shading patterns in Figure 21. The development of all of these areas would create between 150 and 174 units. In order to safeguard multiple residential zoning, the City should consider amending its zoning code to limit the development of single family dwellings to R-E and R-1 districts.

## Residential Zoning

The following are the definitions of zoning categories used in the City of Gustine:

Residential Estate District (R-E) - Minimum building site and family unit requirement equals 15,000 square feet. Maximum dwelling units per acre equals 2.9, though historically R-E averages a density of 1.5 unit(s) to the acre.



Single-Family Residential District (R-1) - Minimum building site requirement equals 6,000 square feet on an interior lot and 6,500 square feet on a corner lot. Minimum lot area per family unit equals 6,000 square feet for first unit and 3,000 square feet for second units. Maximum dwelling units per acre equals 7.1, although recent R-1 has had an average density of 4.7 units to the acre.

Multiple Residential District (R-3) - Minimum building site requirement equals 6,000 square feet on an interior lot and 6,500 square feet on a corner lot. Minimum lot area per Family unit equals 1,500 square feet. Maximum dwelling units per acre equals 29.0, though historically R-3 has had an average density of 25 units to the acre.

Residential-Professional District (R-4) - Minimum building site requirement equals 7,500 square feet. Minimum lot area per family unit equals 500 square feet. Maximum dwelling units per acre equals 87.1, although currently there are no hotels, boarding houses or rest homes in R-4 zoning district.

Planned Community Districts (P-C) - Applicable to areas of five acres or greater and provides for mixed use planning. General and specific plans are required. Minimum zoning requirements for comparable uses from other districts apply, however variances from these requirements may be granted. Floor to site area ratio equals .40. Historically the P-C District has provided 15 dwelling units per acre.

Mobile Home Park Combining District (T) - An exclusive district designation applied to land for mobile home use with no specific lot size identified. The T District, when combined with R-3, shall have an area of not less than four acres with a maximum of 12 units per acre. The T District, when combined with Highway Commercial, shall have an area of not less than three acres with a maximum of 15 units per acre. The existing Mobile home park has 10 units per acre.

## Infrastructure

The City has recently lifted its sewer moratorium and now has limited sewer capacity. New development is required to contribute towards the on-going expansion of wastewater facilities. New development is also expected to contribute to the construction of water "loop" lines and any new wells that may be needed. (For more information see Circulation Chapter).

Several areas outside the City have reasonable access to public facilities (see Figure 21). These areas are immediately south of the City limits, but contiguous to them. Areas to the northwest of the City have potential for development but would require extensions of public facilities. Development of areas outside the City would also require annexation. There are currently 3 planned subdivisions totalling 476 lots on 108 acres.

There are also an additional 14 lots in an approved subdivision (Rosewalk) which have not yet been built out. Since 1985 a lift station has been added to the sewer system on the South side of the City, and one is planned on the north side.

#### Summary of Residential Land Potential

The "Residential Potential" map (Figure 21) lists undeveloped areas "A" through "C" and categorizes them as very good, good, and fair in their potential for residential development. The primary factors in rating residential development potential are sewer and water availability, storm water drainage, zoning and surrounding uses. A brief description of each area is given below.

##### AREA "A" (Very good)

These areas can be easily developed because all public facilities are available or accessible. All areas are located in a functional storm water drainage zone.

Area A-1 requires no major modifications to sewer, however development will be expected to contribute toward and install sections of a 12" water system "loop". Properties in this area will also be part of an assessment district for Sullivan Road bridge reconstruction.

Area A-2 is subject to the same requirements as A-1, but will also be required to install a 10" sewer trunk line.

##### AREA "B" (Good)

Area B-1 requires the installation of a new well and sewer pump station. Storm drainage is functional with some modifications required.

Area B-2 is minimally constrained and requires the water, sewer and bridge improvements discussed in Area A. Major storm drainage improvements may also be required.

Area B-3 may be required to participate in sewer line segment replacement and will be expected to contribute toward and/or install sections of a 12" water system "loop". A functional storm drain system exists adjacent to this area.

##### AREA "C" (Fair)

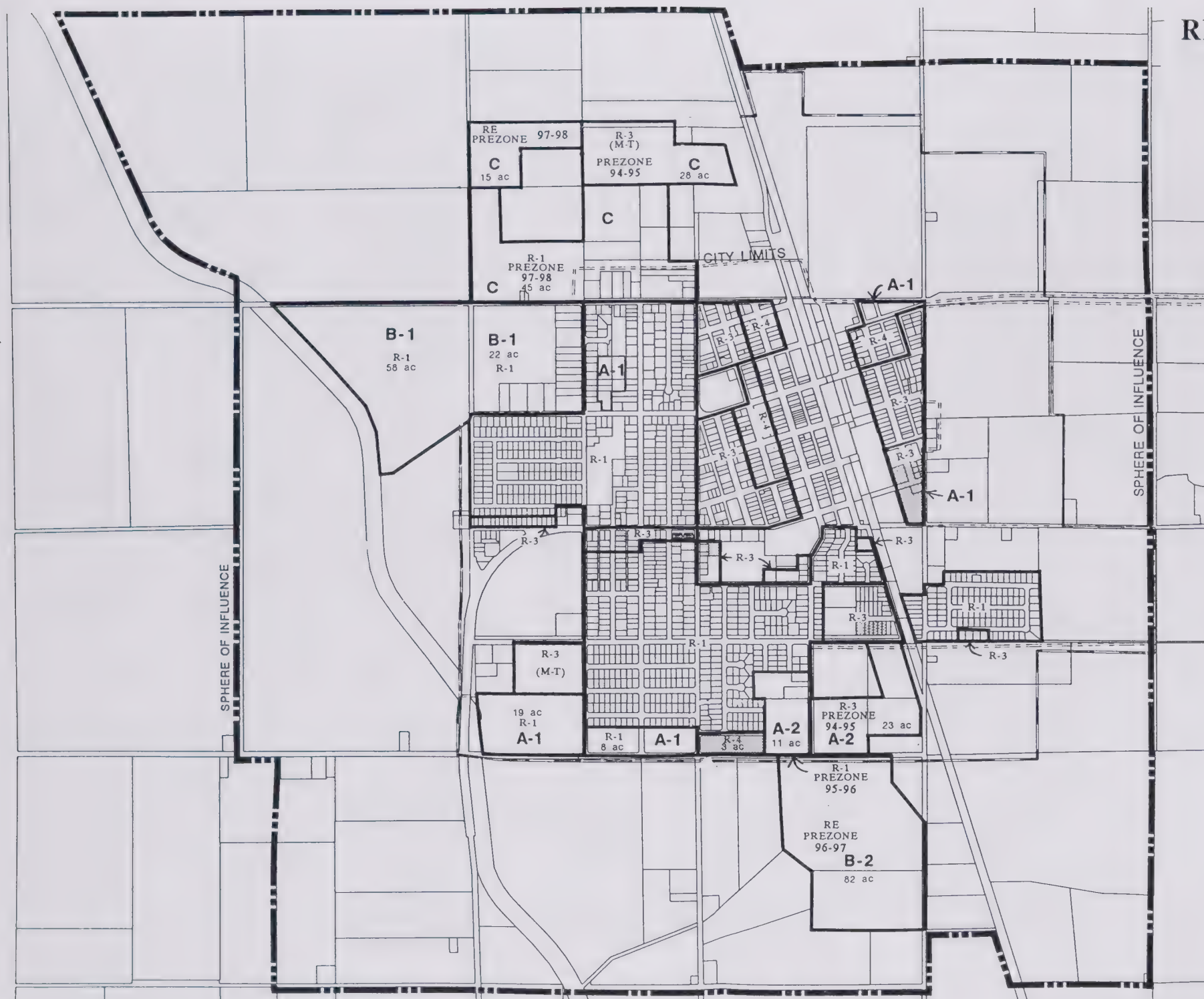
This area is dependent to a large extent upon other development occurring first. At least one additional city well will be required, a sewer pumping station and off-site improvements, and major storm drainage improvements.





# RESIDENTIAL POTENTIAL

Figure 21



## RESIDENTIAL POTENTIAL

- A - VERY GOOD
- B - GOOD
- C - FAIR

## RESIDENTIAL ZONING

- RE - Residential Estate
- R-1 - Single Family Residential
- R-3 - Multiple Residential
- R-4 - Residential-Professional
- M-T - Mobile Home Park
- PC - Planned Community

## - Annexation Dates





## Governmental Constraints

Gustine controls residential development through laws and policies which are found in the Zoning and Subdivision Codes and the General Plan. Many of the controls are mandated by State laws, such as the California Environmental Quality Act (CEQA), the Subdivision Map Act, and Planning, Zoning and Development laws. Others are discretionary actions taken by the City. The State and the City have adopted these laws and controls for the public's general welfare. In an attempt to ensure that these controls benefit local residents, the City periodically reviews and amends the Municipal Code and updates its General Plan.

In order to promote the development of affordable housing, the City allows second single family dwellings in its older R-1 zoning districts. The Planned Community Overlay can also be used to encourage low income housing development by allowing narrower streets, flexible setbacks and smaller lots and dwellings. The City will also enact an ordinance to prevent the premature demolition of older rehabilitatable homes, and will discourage the commercial conversion of larger (3+ bedrooms) older homes in the R-4 district.

The process time for various land use and development requirements varies depending upon the complexity of the proposal. A small subdivision can be approved rather quickly while a large project may take as long as one to two years. These time frames are well within professional planning and development standards.

## Building Permit Process

Local and State Law requires that builders of housing, non-residential structures, and infrastructure obtain building permits and pass inspections to ensure minimum standards of construction. The City currently uses the 1991 Uniform Building Code (UBC) in the permit, inspection and approval process. The City contracts with Merced County to perform its inspections, and work is completed promptly.

Building permits are handled administratively and fees are based on the UBC and the City's charges for sewer and water facility fees. Current fee information is available at City Hall. Permit processing time is usually within 10 to 15 working days and inspections are usually performed the day after receiving a contractor's request.

## Infrastructure

In addition to the fees mentioned above, a developer must pay for extending infrastructure, including streets, sewer and water lines. The City has adopted improvement standards and specifications for infrastructure construction to ensure health, safety, and durability. Improvements and zoning requirements such as streets, curbs and gutters, sidewalks, setbacks, landscaping, floor area ratio, and



parking are considered routine requirements in most communities. Few if any of these public improvements are required for homes being rehabilitated, repaired, altered or expanded.

The City's Circulation Plan provides a guide for major arterials into and out of developing residential areas. Without adequate circulation, future residential and economic development could be stymied. Such infrastructure costs can sometimes be defrayed through government grants (i.e. Community Development Block Grants) if the development benefits low and moderate income residents. The City also charges the following facilities fees for subdivision development to "buy into" existing City Services:

<u>Subdivision</u>	<u>Fees for City Services</u>
Sewer Development	\$3,525/Dwelling unit
Water Development	\$3,810/Dwelling unit

These fees add \$7,335.00 to the cost of each house. Since these fees are substantial, the City may reconsider (on a case by case basis) the fees charged for low or very low income housing, providing there is some other means for providing infrastructure.

#### Public Improvements

In addition to planning fees for subdivision development, the City also requires that all public improvements be installed at the developer's expense. On existing developed sites some or all of those required improvements may be waived based on individual case evaluation by City's Planning Commission and/or Engineer.

#### Other Constraints

In general, land use constraints over which the City has control are processing time, fees, and municipal code requirements. The City's development processing time is efficient and regulation is not excessive. The City Council, Planning Commission, and staff have traditionally worked with developers to insure that adequate and affordable housing is available by reducing development standards. While there is no organized limited-growth faction in the City, there is a general consensus that growth and development should be reasonable and well planned so as to remain an asset rather than a burden to the City.

City development fees help insure that new growth pays its fair share. Revised State requirements concerning school impact fees went into effect January 1, 1987. These fees are currently \$1.58 per square foot of habitable floor area. This adds \$1,975 to a 1250 square foot home, and \$2,370 to a 1,500 square foot home. In Gustine's case it has been argued by the School District that these fees do not adequately mitigate the impacts of new development.

Therefore, new development may be required to pay more per square foot in the future. Recently two developments were required to pay more than the State mandated School Facilities Fees (one at \$2.40 per square foot and the other \$2.50 per square foot) after negotiations occurred between the developer and the District. An effort is being made to ensure that these fee requirements are reasonable and consistent.

#### Non-Governmental Constraints

Market factors have the greatest impact on the availability and cost of housing. In the last three years, the inflation of housing prices has limited the consumer's ability to own or rent affordable housing. These financial factors are a result of private sector and federal government actions and policies and to some extent they are beyond local government control.

Even though the current home mortgage rates are the lowest in five years, many families find themselves unable to qualify for a loan due to stricter income to loan ratios and large down payments on still high housing prices. Local realtors report that most middle class families require a two earner income to purchase a first home in a middle class neighborhood. Many moderate and lower income families have found themselves priced entirely out of the market.

Financial institutions, viewing the depressed rural real estate markets, are reluctant to make acquisition and development loans for new subdivisions. Some federal housing programs, such as Farmer's Home, Veterans Administration, and the Federal Home Administration, help mitigate these financing problems.

The price of land in Gustine is another factor in high housing costs. Although reasonably priced, lot prices are increasing as the supply diminishes. Add to high lot prices and limited financing, increasing costs of building supplies and labor, and housing affordability becomes even more tenuous. The information in Table 19 gives an example of major components and costs of a new, compact three-bedroom two-bath home in Gustine.

The average Gustine family with an annual income of about \$29,598 (\$11,384 per capita according to the 1990 Census Bureau estimate) would be hard pressed to purchase the home described in Table 19 using conventional mortgage structuring.





TABLE 19  
TYPICAL HOUSING DEVELOPMENT COST FOR  
MIDDLE INCOME GUSTINE HOME - 1991

Scenario I (1250 square feet)

Land and Improvement (60'x 100')	\$19,000
School Impact Fees	3,125*
City Building Permit and Hook-ups	7,335
Construction, Construction financing, marketing cost and developer profit (1250 sq. ft. house @ \$63/sq. ft.)	<u>78,750</u>
Total Cost to Consumer	\$108,210

Scenario II (1500 square feet)

Land and Improvement (60'x 100')	\$19,000
School Impact Fees	3,750*
City Building Permit and Hook-ups	7,335
Construction, Construction financing, marketing cost and developer profit (1500 sq. ft. house @ \$60/sq. ft.)	<u>90,000</u>
Total Cost to Consumer	\$120,085

\* This figure is based on \$2.50 per square foot

### Energy Conservation

In 1990, approximately 45% of all housing units were 30 years old or older. These older homes are usually less energy efficient. Pacific Gas and Electric Company (P.G. & E.), the City's principal energy provider, has various energy audits and weatherization programs in which residents are encouraged to participate. In 1992 alone P.G. & E. planned to complete 1,000 weatherizations in this region, the majority of which occurred in Gustine. The City's Building Department also insures that all new or rehabilitated units meet State energy standards. If new homes are required to be highly energy efficient, the reduced electricity costs may help compensate for the higher costs of new housing.

## 5.0 Impact Analysis

### Evaluation of the 1985 Housing Implementation Program

Gustine was successful in achieving several housing goals during its last planning period. In the area of providing adequate housing for all persons in the community, the City coordinated the construction of 35 senior housing units, 40 low income multi-family units, and over 180 low to moderate income single family units. The City did apply for Community Development Block Grant (CDBG) monies for housing rehabilitation however a grant was not awarded. The City reapplied for a planning and technical assistance grant in 1992 with the deliberate intention of rehabilitating targeted income groups.

The City promoted the efficient use of available land by requiring the addition of a sewer lift station to the southwest portion of the City, and adding 1333 linear feet of 10" sewer trunk and water lines to the same area thereby improving the infrastructure to existing housing and developable single family parcels. These improvements were made in conjunction with and immediately benefitted the Brentwood Estates Subdivision.

In the interest of avoiding an undue concentration of low income households, Gustine has been able to distribute assisted housing projects throughout the city. This has been the result of implementing the City's land use layout defined in the 1985 General Plan.

Finally, in order to provide an open and free choice of housing, the City has promoted or facilitated several government housing programs including FmHA 502 & 515, CDBG, and the Merced County Housing Authority. These programs have been reviewed regularly to eliminate overlap and to ensure the proper and efficient use of funds (for available programs see Appendix B-1). The City has also added to its choice of housing by improving the delivery of services through its sewer and water expansion programs. These improvements when complete will serve as incentives for development and the rehabilitation of local housing units.

#### Evaluation of 1992 Housing Implementation Program

This update is projecting significant changes in population, employment and land use for the Gustine planning area. It is our assumption that as housing prices and rents continue to rise, a greater number of people will be paying more than 25% of their gross income for housing in the future. The City has determined that 1990 census data and new income limits (from HCD) warrant changing the number of households which fall into the low and very low income categories, from 51% as outlined in the Regional Housing Needs Plan to 31%. Therefore the City is exercising its option under Government Code, Section 65585.(f)(2) to adopt this draft element with numbers that it has found to be more current and yet consistent with the regional construction need.

This update identifies various housing needs which the City's goals, objectives and policies are aimed at meeting. Among these are the continued need for low income housing to serve the elderly, disabled, and single parent households. Affordable rental units for large families and for seasonal workers are also needed and new ag related industry would accelerate this need. The moderate income family in this area has had difficulty purchasing a home which adequately meets their needs because of relatively low income level averages and the lack of new or rehabilitated housing stock. The low to moderate housing that has been constructed in recent years has been quickly occupied as evidenced by the low vacancy rates.

As has been pointed out in the Land Use Element, there is more than adequate land in the planning area to accommodate the future housing needs of Gustine. Large areas have been identified for low, medium and high density residential uses which are located in reasonable proximity to proposed employment, schools and services.

The City's infrastructure is being substantially improved to allow for more residential growth which is demonstrated by the planned sewer plant expansion. New water wells are being installed by the City with assistance from new development projects to provide potable water and fire flows to Gustine's future residents. The construction of a "water loop system" will also be accomplished with the assistance of new development. Public services will be further aided by road system improvements, school construction and various forms of community redevelopment. A Storm Drainage Master Plan will be completed as well to identify appropriate locations for drainage facilities and reduce the threat of flooding to personal property.

## **6.0 Goals, Objectives and Policies**

**Goal I**      To maintain the current housing stock and provide for additional housing for those working in the Gustine area and those desiring to live in Gustine.

Older housing stock can become an important source of housing for low and moderate income people. Housing conservation (maintenance, weatherization and rehabilitation) should be combined with the construction of new dwelling units in order to meet the wide range of needs in the Gustine planning area.

### **Objectives:**

**A.**      Rehabilitation of an average of 12 very low or low income housing units per year throughout the planning period.

The city has identified 150 housing units in need of rehabilitation and no units have been rehabilitated since 1985.

### **Policies:**

- 1) Continue to participate in programs designed to conserve existing housing.
- 2) Apply for funding through the CDBG program in order to implement a housing rehabilitation program for the low income residents of the City.
- 3) Develop a housing rehabilitation program through the use of state and federal funding and/or tax incentives to assist City residents.



- 4) Provide education and technical assistance for home maintenance, repair and landscaping to all households.
- 5) Continue enforcement of building codes and standards throughout the life of the housing unit before neglect and cumulative maintenance costs place rehabilitation above affordability.
- 6) Continue enforcement of weed and other nuisance abatement programs.
- 7) Continue upgrading residential streets to full City standards through various funding sources, including Grants and Assessment Districts.
- 8) Discourage non-compatible zoning and land use which may affect residential neighborhood vitality.
- 9) Enact an ordinance to prevent the premature demolition of older rehabilitatable homes.
- 10) Remove and promote replacement of dilapidated housing units which are beyond the possibility of repair.
- 11) Promote local participation in PG&E's energy partners program.

These policies represent various methods for conserving community housing stock and, in the case of the CDBG program, have already been used by Gustine.

- B. Maintain the City's low income housing stock at 31% during the 1992-1997 planning period and provide adequate assisted housing for those employed in the Gustine SOI.

This 31% figure reflects the projected housing unit need for low and very low income and equates to 153 dwelling units in five years. This percentage is modified from the 1991 Regional Housing Needs Determination prepared by MCAG and which is used by the State (HCD).

Quantified Objective	New Construction	Rehab	Conservation
Very Low-Income	20	30	25
Low-Income	133	30	25
Moderate Income	143	*	*
Above Moderate	197	*	*

\* Rehabilitation/Conservation will be initiated by individual and the City will encourage by freely issuing building permits

The City is required to quantify the maximum number of housing units by income category that can be constructed, rehabilitated, and conserved over a five year time period.

**Policies:**

- 1) Continue to promote and coordinate Federal and State government housing bond and loan programs such as FMHA 502, 515, and Community Development Block Grants and enter into a joint powers agreement with the Merced County Housing Authority.
- 2) Make information on housing, housing programs and housing assistance on both ownership and rentals available to all members of the community.
- 3) Seek housing assistance and encourage programs for the elderly, handicapped, single mothers and the homeless.
- 4) Support the development of an affordable senior citizen complex by providing variances for smaller lot sizes for individual mobile or manufactured home sites.
- 5) Preserve existing assisted housing by annually monitoring their prepayment status and by maintaining contact with non profit agencies interested in purchasing and/or managing such units.
- 6) Encourage programs which allow local moderate income families to purchase homes.
- 7) Use zoning and land use controls flexibly to accommodate low income housing.
- 8) Establish a minimum density within the R-3 and R-4 zoning districts
- 9) Support the establishment of an emergency shelter/halfway house by applying for homeless shelter funds.

Gustine was successful at promoting and coordinating several government housing programs during the previous planning period.

**Objectives:**

- C. Promote and insure an open and free choice of housing for all (for mixes see Tables 16, 17 & 18).

The State legislature has stated that it is the responsibility of local government to work cooperatively with the private sector in an effort to expand housing opportunities for all Californians and to

insure fair housing practices.

**Policies:**

- 1) Provide a mixture of residential uses, including high, medium, and low densities and Planned Community Developments (PCs).
- 2) An assortment of housing types at various price ranges, including but not limited to, the development of mobile home parks, modular homes, condominiums and custom homes in suitable locations.

Refer to the Zoning Consistency Table in the Land Use Element to determine the residential uses that may be permitted in low, medium and high density residential land use classifications.

- 3) Provide above moderate housing according to the need identified in the Merced County Regional Housing Needs Plan.
- 4) To promote affirmative marketing, open housing, and other practices which will have a positive impact on minorities and women.

This policy is aimed at meeting the needs of low income and female-headed householders.

- 5) To display brochures and pamphlets from the Fair Employment Practices Commission.
- 6) Discourage the excessive concentration of lower income groups which contributes to income segregation by providing mixed housing.
- 7) Develop an active partnership with a non-profit housing agency (Self-help, Housing Authority, or other) in order to; provide information on fair housing laws, refer complaints of housing discrimination to appropriate State or Federal agencies, and solicit State and Federal funds for housing rehabilitation/development and program management.

These policies represent various methods for promoting fair housing and some were previously adopted by Gustine in 1985. State law also requires that local government make adequate provision for the existing and projected needs of all economic segments of the community. HCD encourages non-profit partnerships with local governments.



8) Preserve residences with three or more bedrooms for larger families by preventing the conversion of these homes within the residential-professional district to commercial use.

**Objectives:**

- D. The development of a balanced residential environment with access to employment opportunities, community facilities, and adequate services.

This objective works toward a jobs-housing balance as well as promoting energy conservation opportunities in new residential development.

**Policies:**

- 1) Encourage business and industries which create the most jobs and best wages relative to its demand for services (i.e. sewer, water) to locate in Gustine.
- 2) Maintain adequate housing stock to accommodate increased work force.
- 3) Promote adequate and accessible park and community services for various residential areas through use of park dedication fees or dedications by developers.
- 4) Analyze all development projects for their impact on infrastructure and public services.
- 5) Insure that developers provide or commit to payment of their fair share of infrastructure development for their projects.

The City is interested in promoting development that does not have an adverse fiscal impact upon the community.

**Goal II Promote the efficient use of land available for housing.**

In the past the City Planning Commission has discouraged "leap frog" development by denying projects which are not contiguous to existing City infrastructure.

**Objectives:**

- A. Average 99 housing units per year to meet the market demand for housing in Gustine from 1992 through 1997.

Employment projections, commuter housing demand and approved tentative maps are reasons this annual average.

**Policies:**

- 1) Cooperatively work with Housing Authority and Self-Help to meet the need for low and very low income housing.

**Objectives:**

- B. Enact a density bonus ordinance to comply with state requirements and facilitate developer's use of the density bonus.

**Policies:**

- 1) Provide density bonuses or other incentives to developers who include units affordable to low or moderate income households.
- 2) Negotiate development agreements with developers to provide public facilities in exchange for certain development rights such as land use changes and density increases.
- 3) Hold pre-application conferences and prepare explanatory materials on the application and review process to streamline permit processing.
- 4) Encourage use of the "Planned Community Development" concept, including mobile home parks.

Each of these policies promote greater cooperation between the City and the private sector with the best interests of the community in mind.

**Objectives:**

- C. Annex after appropriate areas within the City limits have been built out.

Two 10-year land use development phases have been proposed in this document to promote orderly and fiscally sound growth in Gustine.

**Policies:**

- 1) Encourage infill housing in residential districts where services are available.
- 2) Annex those area easily serviced and within the Specific Urban Development Plan Boundary (SUDP) for both single family and multi-family.

3) Require developer to bear cost for public service improvements with annexation, and help fund off-site improvements using assessment districts.

4) Maintain integrity of residential districts through discouraging or mitigating incompatible uses in or adjacent to residential districts.

5) Annex where there are the least constraints and where public facilities are accessible and have the capacity to accept growth.

These previously adopted policies promote a more efficient use of available land within the Gustine planning area.



# IV - Noise



## CHAPTER IV: NOISE

### 1.0 Introduction and Purpose

The Noise Element is designed to identify and evaluate noise within the Gustine Sphere of Influence (SOI). This chapter follows the guidelines of the State Office of Noise Control by quantifying current and projected noise levels for the following:

- 1) Highways
- 2) Primary Arterials and major local roads
- 3) Freight on-line railroad operations
- 4) Local Industrial plants and other stationary noise sources
- 5) Airport operations

Noise contour maps together with specific community goals, objectives and policies have been prepared to 1) provide mechanisms for reducing and/or eliminating existing conflicts between land uses and noise and 2) to ensure that future land use and noise exposure are minimized.

Definitions of acoustical terminology used in this chapter and a community noise assessment may be found in Appendix C-1 & C-2.

### 2.0 Methodology

The Federal Highway Administration Traffic Noise Prediction Model was used to develop day-night average level (Ldn) contours for those portions of State Highways 33 and 140 which pass through the Gustine planning area. Traffic data representing annual average traffic volumes for existing and future conditions were obtained from Caltrans.

Additional noise contours were prepared on the basis of noise monitoring or by following generally accepted noise modeling techniques for the sources listed above. This chapter uses the published noise survey work of Brown-Buntin Associates, Inc. who originally performed a city-wide study in 1984. This information is summarized in Appendix C-3. Revisions were prepared by MCAG to incorporate current Caltrans information, the addition of new industrial facilities and future school and recreation sites.

### 3.0 Existing Conditions

Exposure to existing and projected noise levels within the Gustine planning area is largely limited to traffic on Highways 33 and 140, the Southern Pacific Transportation Co (Railroad) and various local industrial facilities. The Gustine Airport is located east of town and away from existing and proposed future noise-sensitive land uses. Agriculture, which produces occasional noise, is not a significant hazard because of its infrequency.

## Highways and Major Local Roadways

The primary noise sources affecting the City of Gustine are State Highways 33 and 140. Using the Caltrans traffic information and the Federal methodology, traffic noise levels along the highway have been calculated for existing (1988) traffic volumes. The distances from the highway centerline to the 60 dBA Ldn contours are illustrated in Figure 22 (see also Appendix C-4).

Currently, local roads have low levels of traffic, and therefore, do not create a noise problem.

## Railroads

The Southern Pacific Transportation Company whose mainline runs through the center of Merced County also runs a branch line across the County's west side. The branch line runs through the eastern part of Gustine with through freight and local switching operations. The average number of trains per week are three northbound and three southbound. All trains run between 7:00am and 10:00pm. The loudest noise coming from the train's horn measured 97 dBA and maximum noise levels from locomotives and cars was identified as 70-82 dBA. This has little impact on the community however because at 100 feet from the center of the tracks, noise levels were under 50 dBA, with the exception of intermittent horn noise.

## Industry and Other Stationary Noise Sources

There are currently eight potential stationary noise sources in the Gustine planning area. Five of these are known to produce varying levels of noise, with Ldn 60 dBA located between 150' to 825' from the center of the noise source. Potential noise sources are: Beatrice Cheese (Beatrice Foods Co.), Souza's Milk Transportation Co., Bettencourt Trucking, Carnation Co., Avoset Food Corporation, Ted Peters Trucking, and T and M Nut Co. Noise levels from T and M Nut Co. have been estimated based upon other similar operations in the valley. More detailed information for this and other industrial facilities can be found in Appendix C-3.

## Land Use Compatibility

Acceptable community noise levels vary according to land use. The California Department of Health, Office of Noise Control, has developed a land use compatibility table illustrating the range of environmental noise levels which will allow a full range of activities normally associated with a given land use (see Table 20). As an example, exterior noise levels below 60 dBA Ldn are generally considered acceptable for residential uses whereas industrial facilities can be relatively insensitive to noise and may often be located in a noise environment of up to 75 dBA Ldn without significant adverse effects.





Generalized Ldn  
60 dB Contours



100 500  
0 200 1000 FEET

Noise Contours

Figure 22

TABLE 20

LAND USE CATEGORY	COMMUNITY NOISE EXPOSURE Ldn OR CNEL, dB					
	55	60	65	70	75	80
RESIDENTIAL-LOW DENSITY SINGLE FAMILY, DUPLEX, MOBILE HOMES						
RESIDENTIAL-MULTI FAMILY						
TRANSIENT LODGING- MOTELS, HOTELS						
SCHOOLS, LIBRARIES, CHURCHES, HOSPITALS, NURSING HOMES						
AUDITORIUMS, CONCERT HALLS, AMPHITHEATRES						
SPORTS ARENA, OUTDOOR SPECTATOR SPORTS						
PLAYGROUNDS, NEIGHBORHOOD PARKS						
GOLF COURSES, RIDING STABLES, WATER RECREATION, CEMETERIES						
OFFICE BUILDINGS, BUSINESS COMMERCIAL AND PROFESSIONAL						
INDUSTRIAL, MANUFACTURING UTILITIES, AGRICULTURE						

## INTERPRETATION

**CLEARLY UNACCEPTABLE**

New construction or development should generally not be undertaken.

**NORMALLY UNACCEPTABLE**

New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

**CONDITIONALLY ACCEPTABLE**

New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

**NORMALLY ACCEPTABLE**

Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

SOURCE: State Department of Health, Office of Noise Control, Feb. 1976

## Land Use Compatibility for Community Noise Environments Outdoor Noise Levels

Land use designations within the City of Gustine have been laid out fairly well with most of the commercial and industrial uses within the generalized Ldn 60 dB contour. There are a few instances however, where proposed high density residential land uses fall into this area.

#### **4.0 Future Conditions**

##### **Highways and Major Local Roadways**

Traffic noise levels along the State Highway were calculated for projected (year 2000) traffic volumes. The distances from the highway centerline to the 60 and 65 dBA Ldn contours are summarized in Appendix C-4.

Noise calculations along the highway did not consider the shielding effects of local buildings or topographical features and therefore are a worst case estimate of noise exposure (refer to Figure 24). Typically the noise exposure behind a row of homes or other buildings is reduced by 5-15 dBA.

Some streets in the Gustine planning area have been redesignated from collectors to arterials in this update. The City anticipates greater ambient noise levels along these streets as traffic volumes increase. The noise levels along Sullivan and Kniebes Avenue are expected to increase because they have been given a truck route designation. There will however be a corresponding decrease in traffic noise on State Highways 33 and 140 (through town) because of the diversion of medium and heavy trucks.

##### **Railroads**

There are no anticipated changes in future railroad noise levels.

##### **Industry and Other Stationary Noise Sources**

A study by Brown-Buntin (Appendix C-3) concluded that too many variables exist to allow meaningful projections of future activity or noise levels at industrial sites. It is safe to say however that technological improvements have led to quieter industrial equipment and advanced methods of sound attenuation. Therefore, where new stationary sources could effect existing noise sensitive land uses, the city will require some form of attenuation.

##### **Land Use Compatibility**

The land use designations illustrated in Figure 6 were developed using the noise element as a guide for establishing the patterns shown. In several cases new land uses have replaced older ones in order to reduce the potential for increased noise impacts.



## **5.0 Impact Analysis**

The City anticipates greater ambient noise levels along local streets as traffic volumes increase. Therefore it is pursuing a variety of objectives and policies to minimize noise exposure. Among these are the designation of compatible land uses and their corresponding circulation routes, participation in Caltrans administered noise control programs and the imposition of methods for noise attenuation.

Each proposed new use should be evaluated on an individual basis. Land uses have been distributed throughout the planning area after considering noise sensitive residential uses and noise producing commercial and industrial uses. If noise levels are judged to be excessive with new stationary sources, the City will require open space areas, sound walls, berms or other noise attenuation measures to minimize these impacts. The City will also apply hourly Leg based (equivalent energy level) criteria as performance standards for new industrial and commercial land uses (see Table 21).

The City believes that the noise compatibility criteria should also be applied to existing and proposed noise sensitive land uses such as residential areas, schools and hospitals. The City will make it a matter of policy to require noise sensitive development to adhere to the State recommended standards and to achieve these standards through such means as building insulation and the construction of walls, berms, etc.

## **6.0 Goals, Objectives and Policies**

**Goal I      To free city residents from the harmful effects of excessive noise from highways, local arterials, railroad and airport operations, as well as, stationary sources.**

The primary noise generators in the Gustine planning area are transportation related and they effect noise sensitive residential uses. The noise contours will be used as a guide for establishing a pattern of land uses that minimizes the exposure of community residents to excessive noise.

### **Objectives:**

**A.    Residential areas are not significantly impacted by excessive exterior noise levels 65 dBA or greater.**

Noise standards from the State Office of Noise Control will be used as the criteria for evaluating and regulating exterior noise.

TABLE 21

# Land Use Compatibility Standards For Residential Land Uses

NOISE SOURCE	EXTERIOR STANDARD	INTERIOR STANDARD
Traffic on public roadways, railroad line operations & aircraft in flight	65 dB Ldn/CNEL	45 dB Ldn/CNEL
Other sources Daytime (7 a.m.-10 p.m.)	Hourly Leg of 55dBA and a maximum level of 75 dBA	45 dB Ldn/CNEL
Other sources Nighttime (10 p.m.-7 a.m.)	Hourly Leg of 45 dBA and a maximum level of 65 dBA	45 dB Ldn/CNEL

1. Windows and doors closed.

Source: Brown-Buntin Associates, Inc.

#### **Policies:**

- 1) Residential subdivisions and multiple family developments will incorporate appropriate measures to reduce exterior noise exposure from ground sources including the use of berms, walls, landscaping, etc.
- 2) New stationary sources which effect existing noise sensitive land uses will be required to minimize exterior noise levels by using attenuation methods including building insulation, quieter equipment, etc.

These are common development policies for controlling noise at its source. Other options include building design/orientation, and buffer yards.

- B.** Interior noise levels for residential dwelling units in residential areas do not exceed 45 dBA.

The interior noise criteria used here are sufficient to comply with state noise insulation requirements and the attenuation guidelines of the U.S. Department of Housing and Urban Development (HUD).

#### **Policies:**

- 1) Design standards and construction measures will be incorporated into all new residences to achieve an interior noise level not exceeding 45 dBA.
- 2) The City will provide technical assistance to property owners in existing residential areas who wish to achieve an interior noise level which does not exceed 45 dBA.

There are general attenuation measures which may be introduced at the planning and building review stages and incorporated into the construction of new homes and rehabilitation of existing homes.

- C.** Hospitals, schools and other noise sensitive structures are not significantly impacted by excessive exterior noise levels.

The same standards will be applied to hospitals and schools as are applied to residential dwellings.

#### **Policies:**

- 1) The City will not approve new land use designations for the development of hospitals and schools where it is determined that existing or projected exterior noise levels exceed 70 dBA.



- 2) The City will assist owners of schools and hospitals in reducing excessive noise exposure. Noise reduction between 65-70 Ldn contours shall be 25 dB.

The City has determined that the "conditionally" acceptable exterior standard for noise sensitive land uses is 65 dBA. Once again attenuation measures may be required at the planning and building review stages.

**Goal II    To provide appropriate areas in the City for noise generating land uses and facilities in order to promote their long term economic viability and growth.**

Some future commercial and industrial land uses and facilities may create exterior noise levels in excess of that which is acceptable to homes, hospitals and schools and yet are compatible with other like uses. The proposed General Plan map was designed to minimize noise conflicts between land uses.

**Objectives:**

- A. 20 acres of new commercial and industrial areas located to minimize encroachment by incompatible noise sensitive land uses.

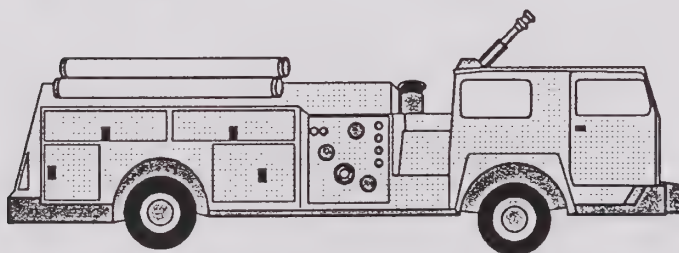
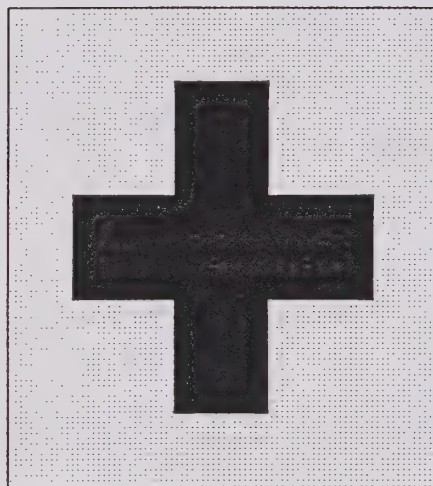
The proposed General Plan map actually designates commercial and industrial acreage which exceeds this 20 acre minimum and which discourages encroachment.

**Policies:**

- 1) The City will consider the potential for encroachment of noise sensitive land uses which could adversely impact the viability of new commercial and industrial land use activities.

New commercial and industrial development is as important to Gustine as residential development because it will create a stable economic base. Therefore it is equally important to protect the noise generating land use activities.

# V - Safety



## **CHAPTER V: SAFETY**

### **1.0 Introduction and Purpose**

People living in hazardous areas perceive hazards in various ways. Many people who live in such areas are totally unsuspecting of the risk, and become aware only after the initial disaster hits. Some are conscious of the risk but do not judge it to be of significant magnitude or likelihood to warrant a change in their lives. Still others are aware of the hazards and take steps themselves or through their elected officials to deal with them.

It is the goal of this Safety Element to protect Gustine residents from unreasonable risks and reduce the impacts of natural hazards to the community. In most cases, proper planning, as outlined in this chapter's objectives and implementation policies, will reduce threats to human safety and also the economic and social disruption resulting from natural hazards.

Safety hazards effecting the City of Gustine include seismic activity and its related effects, flooding, fires, the storage and transport of hazardous materials and crime. This Safety Element also identifies emergency evacuation routes, their minimum road widths, and peakload water supply requirements in relation to the various safety hazards.

### **2.0 Methodology**

A variety of assessments were made in the preparation of this Safety Element. These included an examination of the general geology and seismic history of the planning area, the potential for inundation from dam failure, the risk of urban and wildland fires, and the adequacy of existing emergency preparedness and evacuation plans.

The City has also used (and intends to adopt) those portions of the Merced County Safety Element that pertain to the city's planning area.

### **3.0 Existing Conditions**

#### **Earthquakes**

The nearest faults of major historical significance are the San Andreas to the west of Merced County, a distance of approximately 40 miles from Gustine; the Hayward and Calaveras faults to the northwest; the White Wolf, Garlock, and Sierra Nevada faults to the south, and the Bear Mountain Fault Zone about 40 miles to the northeast of Gustine. These faults have been and will continue to be the principal source of seismic activity affecting the County of Merced.



The "Ortigalita" is the only known fault inside our County , also known as the "Telsa-Ortigalita Fault" (see Figure 23). This fault bisects the Coast Range approximately 10 miles from Gustine but has not been historically active.

Gustine has never been an earthquake epicenter, however earthquakes originating elsewhere have shaken the City. There is documented evidence of seven earthquakes that shook the area in 1872, 1906, 1952, 1966, 1979, 1984, and 1989 and there may have been others which were not documented. In the past no loss of life, serious injury, or major damage has occurred in Gustine due to earthquakes. However, if an earthquake epicentered in or near Gustine, the City's downtown would be destroyed much like Coalinga in 1982.

#### Liquefaction & Tectonic Subsidence

No specific liquefaction areas have been identified in Gustine however the potential exists due to the high water table and disposition of some soil types such as those in the wetlands adjacent to Gustine.

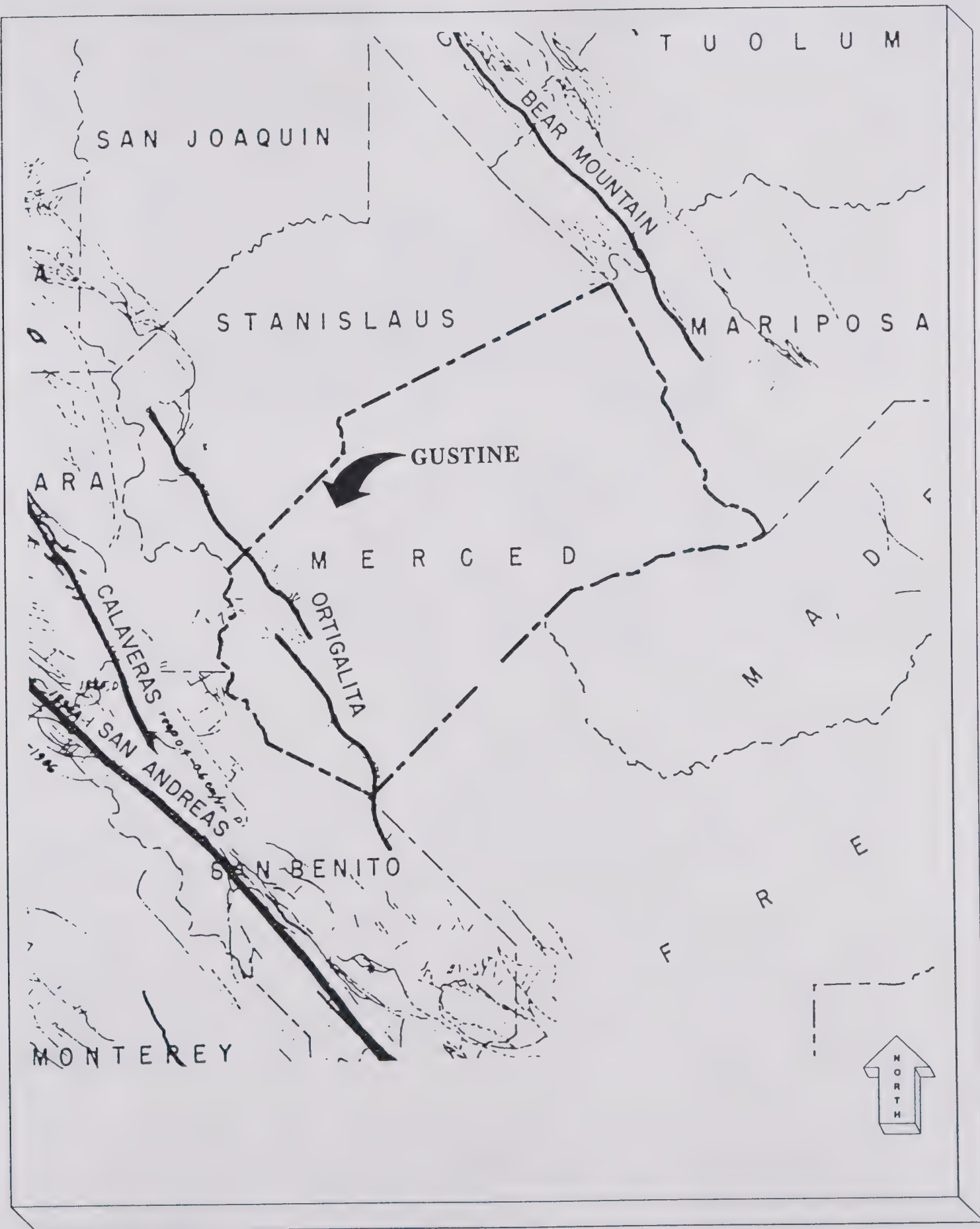
Tectonic subsidence occurs when loose, less cohesive soils are compacted due to earthquake shaking. This is most likely to occur where groundwater surface is deep, the soils are loose to medium dense, and the soil profile includes strata of loose and uniformly graded sand. These characteristics are not present within the Gustine planning area.

#### Hazardous Buildings

Unreinforced Masonry (URM) buildings are historically known for their poor performance when subjected to earthquake fault displacement, landslide or soil liquefaction. Consequently, URM buildings are considered a dangerous threat to life. Emergency facilities which are constructed out of URM, such as fire stations and schools, pose an even greater risk during these life threatening circumstances.

The California State legislature recognized the hazard these buildings pose, and enacted the Unreinforced Masonry Building Law in 1986, (Senate Bill 547 [Alquist]; Government Code Section 8875). The law requires cities within Seismic Zone 4 to Inventory all older and potentially hazardous buildings by 1990. Gustine (Seismic Zone III, Figure 24) is not required to complete an inventory under the law. However, to insure a safe environment in the retail commercial core this is being recommended in conjunction with redevelopment efforts.

The State Division of Mines and Geology has designated the Gustine area with a Maximum Expectable Earthquake Intensity of "High Severity Major Probable Damage". These "intensity zones" identify the severity of earthquake damage which is different than the seismic



**Geologic Faults**

**Figure 23**



SOURCE: California Division of Mines and Geology  
and Merced County Year 2000 General Plan

# Seismic Zones

Figure 24



zones used for building code compliance. Emergency response and evacuation for earthquakes is discussed under Emergency Evacuation routes.

### Potential Dam Failure

Gustine is just west of the Potential Dam Failure Inundation Area for the San Luis, McClure, and Los Banos Creek Detention Reservoirs and would therefore be unaffected if failure were to occur. Although Gustine is unaffected by the potential dam failure of San Luis Reservoir or flooding of O'Neill Forebay, it can be noted that the Safety of Dams Division of the Federal Bureau of Reclamation is in the process of making improvements so that O'Neill Dam will withstand a Maximum Credible Earthquake. Improvements are expected to be completed by December 1991.

### Flooding

Flooding, more than any other weather related threat, is the greatest contributor to property loss in the United States. Fortunately, Gustine is not within a 100 year floodplain nor has it experienced a disastrous flood. The flooding that has occurred in this area is associated with poorly developed surface drainage because of flat topography, clay soils and a high water table. In Gustine the free water depth is 5 to 20 feet below the surface (see Figure 25). This area could experience some flooding associated with poor drainage.

### Urban Fires

Urban fires are defined as the uncontrolled burning of residential, commercial, or industrial property. Risks involved include personal injuries, fatalities or property damage caused by fire. Fires are accelerated due to poor building construction, lack of built-in fire protection such as sprinklers, highly flammable contents, delay in detection and alarm, inadequate fire protection equipment and the lack of sufficient water supply.

The Gustine municipal fire department is made up of one part-time chief and twenty-five trained volunteer firefighters. The station is manned full time by the California Department of Forestry (CDF) whose services are paid for by the County. The City pays for building upkeep, its own fire fighting equipment, and its part-time employees. The City has a mutual aid agreement with the County to cooperatively control major fires. The County is the first to respond to fires and then the City volunteers are called as needed.

The joint City/County shared fire station houses two City fire trucks and an emergency response vehicle. The City did not have an Insurance Services Office (ISO) rating for almost 12 years before the check was completed on May 20, 1991. The results from this recent check was an ISO rating at level 5 which was an improvement over the last rating.



SOURCE: California Dept. of Water Resources 1982  
 and Merced County year 2000 General Plan

# Drainage Problem Areas

Figure 25



Response times throughout the City and proposed Soi vary from 2 to 3 minutes.

#### Peakload Water Supply Requirements

The increased use of hazardous materials and the ever present threat of arson make it clear that the Gustine area is not exempt from experiencing a major urban fire. The 1990 Water Supply Study for the City of Gustine reveals that during peak demand in the summer months peakload water supply falls short. Even with the use of well # 3 (which has nitrate problems and cannot be used for domestic water) the water supply lacks 1260 gallons per minute.

This can be overcome with the use of the tower storage, however this only lasts for 25 of the recommended 120 minutes. To obtain the two hour fire flow required, either additional storage tanks, additional wells or a combination thereof is needed (1990 Water System Study for the City of Gustine).

Table 22 shows the ISO recommended fire flows based on population and fire demands. As can be seen, population has little effect on the recommended fire flows of smaller cities. Greater consideration is given to the type of structures, construction materials and building setbacks. Two thousand gallons per minute (1500 gpm + 500 gpm for combustible roofs) is considered the minimum necessary flow, over a 2 hour period, to meet residential fires. Additional fire flows should be considered for industrial and commercial buildings on a case by case basis.

#### Wildland Fires

Wildland fires occur from a combination of climatic, vegetative and physiographic conditions and have the potential to cause loss of life and property damage. Most of the undeveloped land within Gustine is irrigated agricultural land, which has a low potential for fire hazard. A response to wildland fires would come from federal, state and local government fire protection agencies through an urban/rural interface. Wildland fire hazards may be reduced by enforcement of proper building codes, use of green belting, prescription burning to control fuel load, weed abatement, and implementation of other fire safe practices. The City of Gustine subscribes to all of these practices.

#### Emergency Evacuation Routes

Earthquakes, fires and flooding are all hazards which require planned evacuation routes to move residents to safer ground. For the most part major highways such as Highway 33 and 140 would be used for evacuation. However, alternative routes including major east-west and north-south arterials (designated in the Circulation Element) and County roads should also be used. Some hazards are more predictable than others and therefore emergency responses will vary. Flooding



## Fire Flow Requirements\*

YEAR	CITY POPULATION	REQUIRED FIRE FLOW (GPM)	HOURS DURATION	TOTAL WATER REQUIRED (MGD)
1990	5,308	2,000	2	2.88
1995	7,909	2,000	2	2.88
2000	10,738	2,000	2	2.88
2005	14,543	2,000	2	2.88
2010	19,667	2,000	2	2.88

*\*As recommended per the American Water Works Association and the Insurance Services Office, for single and two family structures not over two stories in height with wood shingle roof construction. Commercial and Industrial structure fire flow requirements shall be considered on an individual basis*

for example is predictable and evacuations can be planned in advance. Flood maps are available so that emergency personnel have knowledge of the inundation areas and can direct people to higher ground.

Fires are also somewhat predictable because once they break out they can be contained to a limited area and residents need only be moved to another neighborhood. Earthquakes on the other hand are unpredictable and residents will have to rely on radio and television broadcasts to direct them to designated evacuation routes. Intracity routes would be regulated by the California Highway Patrol in conjunction with County sheriff and City police. For more detailed information on evacuation routes see the Merced County General Plan. The City endorses and will abide by the Office of Emergency Services "Multi-Hazard Functional Plan" and any amendments made to it.

### Hazardous Materials

The City of Gustine has had one serious encounter with Hazardous Materials when there was an ammonia leak at the Beatrice Cheese Co. plant in 1986 and nearby residents were forced to evacuate. Luckily there were no serious injuries because local emergency crews knew how to deal with such a disaster. The most common type of hazardous waste problem in Gustine is related to leaking underground storage tanks. Currently 14 locations have been identified as hazardous waste sites (see Table 23 below).

TABLE 23  
HAZARDOUS WASTE SITES IN GUSTINE

ANDY BARSAMIAN (FOREMOST)	430 1ST AVENUE
AVOSET FOOD CORPORATION	299 5TH AVENUE
BETTENCOURT BROTHERS	750 EAST AVENUE
CARNATION COMPANY	771 EAST AVENUE
CHEVRON STATION #0277	32932 SULLIVAN ROAD/I-5
CITY OF GUSTINE OLD CORP. YARD	310 6TH STREET
GUSTINE SHELL SERVICE	420 THIRD AVENUE
GUSTINE HIGH SCHOOL	501 NORTH AVENUE
NUNES CHEVRON SERVICE	401 4TH STREET
QUICK AND EASY	780 SOUTH AVENUE
SOUZA'S MILK TRANSPORTATION	474 5TH AVENUE
SOUZA'S GROCERIES	1107 SOUTH JENSEN ROAD
UNOCAL #3890 (FORMER)	480 6TH AVENUE
WESTSIDE CONCRETE	28525 BAUMBAUER ROAD
The Barsamian site is also considered a hazardous waste site due to surface spills from hazardous materials.	

### Circulation Safety

In order to provide safe circulation for all types of travel, the City has set standards for the design of building construction and circulation facilities. Design standards include building setbacks for optimum clearances around structures and minimum road widths

(also defined in the Circulation Element). Speed limits are set based upon a road's designation and intended use. Crosswalks are also provided for pedestrians at strategic locations. As more development occurs south of State Highway 33 it may be necessary for the City to construct a pedestrian overpass.

A grant application has been submitted to obtain funds for the preparation of an Airport Land Use study. The existing Gustine Airport Safety Zones are illustrated in Figure 26.

#### Canals and Drainage Ponds

The CCID canal which borders the west edge of the City and the storm water drainage ponds at various locations are a potential safety hazard. As a precaution, warning signs have been posted and fencing will be implemented with development.

#### Emergency Plan

The City of Gustine has not yet adopted an Emergency Plan, however it set up provisions in 1989 for the adoption of an Emergency Operations Plan. This ordinance appoints a Disaster Council, made up of the Mayor, Director of Emergency Services (City Manager), Deputy Director of Emergency Services (appointed by the Director) and chiefs of emergency Services. It is the duty of this Disaster Council to complete an Emergency Plan to be adopted by resolution at the City Council. The threefold purpose of the Plan would be to:

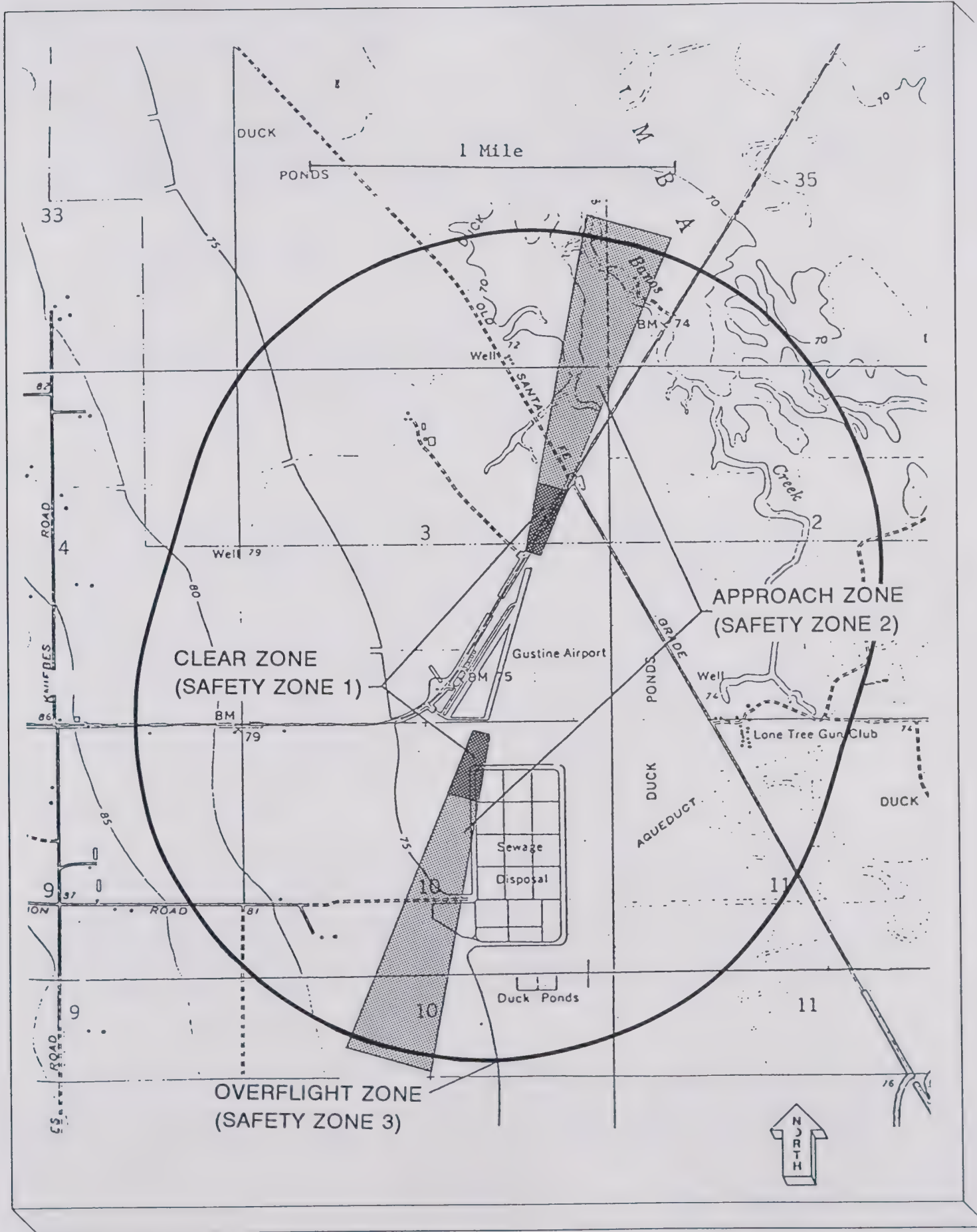
1. Provide a basis for the conduct and coordination of operations and the management of critical resources during emergencies;
2. Establish a mutual understanding of the authority, responsibilities, functions, and operations of a civil government during emergencies; and
3. Provide a basis for incorporating into the City emergency organization non-governmental agencies and organizations having resources necessary to meet foreseeable emergency requirements.

The Plan would become operative during States of Emergency.

#### Crime

The City has one of the lowest crime rates in the Central Valley which can be attributed to the local police force, rural environment and homogeneous population. The Gustine City Police currently provide all aspects of law enforcement for the City of Gustine, including a Drug Abuse Resistance Education (DARE) officer at school, traffic enforcement, drug interdiction, etc. There are currently 1.5 officers per 1,000 persons (seven total including the Police Chief). There are also three fully marked cars, as well as, two other cars for special uses.





**Gustine Airport Safety Zone**

**Figure 26**



## Aquatic Insect Problem

Due to the proximity of wetlands and irrigated farmland to Gustine's urban areas, some residents may already experience problems with mosquito nuisance and associated health problems.

## 4.0 Future Conditions

### Earthquakes

The Telsa-Ortigalita Fault has not been historically active, but there is no assurance that it will not become active in the future. It is unlikely that Gustine will ever be an earthquake epicenter, however earthquakes originating elsewhere will continue to shake the City and, as the population grows, more people will be subject to these impacts.

### Liquefaction & Tectonic Subsidence

As mentioned earlier ground shaking can result in soil settlement or sinking. If the sediments which compact during an earthquake are saturated, water within the soil is forced to the surface, where it emerges in the form of mud spouts or sand boils. If the soil liquefies in this manner (liquefaction), it loses its ability to support structures causing them to sink into the earth. The degree of settlement damage can vary from minor to total collapse. Soil types such as Agnal and Kesterson are potentially dangerous because of wetness and ponding. The City is interested in minimizing property losses resulting from liquefaction. One of the ways it has done this is by creating a planning boundary (SOI) which directs urban development away from liquefaction prone soils.

### Hazardous Buildings

The State Division of Mines and Geology has designated the Gustine area with a Maximum Expectable Earthquake Intensity of "High Severity Major Probable Damage" (Figure 24). These "intensity zones" identify the severity of damage expected should an earthquake occur. New development will be required to comply with current building standards for seismic safety. Older buildings will be rehabilitated as an ongoing program for improving the City's housing stock.

### Potential Dam Failure

Gustine will be unaffected by Dam failure unless significant growth were to occur further to the east, which is unlikely. The Federal government is making substantial improvements to the O'Neill Dam which further reduces the dam inundation potential to areas in the vicinity of Gustine.



## Flooding

Most floods in Merced County are produced by extended periods of rainfall during the winter months. This is the time of year when an adequate surface drainage system is critical. Further development will contribute to the surface drainage problem, therefore the City plans to minimize the potential for flooding and flood damage. (see Flood Control, Open Space/Conservation Element).

## Urban Fires

As the Gustine Planning Area and population expand more volunteers will be required and the City constantly promotes the recruitment of new members.

## Peakload Water Supply Requirements

The total water storage required is the amount needed to fight a fire at the flow rate of 2000 gpm for 2 hours plus the 24 hour maximum domestic consumption of the City. As was mentioned in the Circulation Chapter, the 1990 combined capacity of the City's wells is 3,250 gallons per minute and 4,510 gallons per minute is the current demand. As population increases this demand deficit will also grow unless new wells and/or storage facilities are provided.

## Wildland Fires

The prevention methods practiced by the City of Gustine, will reduce the likelihood of a wildland fire within the Proposed Gustine Sphere of Influence.

## Emergency Evacuation Routes

In the future the number of evacuees from the Gustine area will increase, however streets will also be improved to accommodate additional vehicles.

## Hazardous Materials

The release of hazardous material into the environment could cause a number of problems; the significance of which is dependent on the type, location and quantity of the material released. Types of hazardous materials include flammable liquids, agricultural pesticides, herbicides, etc.

Areas within the Gustine SOI which have a greater potential for being effected by hazardous materials are sites near existing underground storage tanks, the Highway 33 and 140 corridors, and areas adjacent to gas lines. The most common type of hazardous problem in Gustine is related to leaky underground storage tanks. At the present time 14 locations have been identified as hazardous waste sites. For this county, agricultural chemicals, which are

routinely stored and transported, are the most common type of hazardous materials. Earthquakes increase the risk of hazardous material spills.

#### Circulation Safety

As growth occurs and vehicle trips increase, the potential for traffic accidents and injury will also increase. The City will need to coordinate with the County and State to create effective road systems and transitions.

#### Canals and Drainage Ponds

Canals and drainage ponds throughout the City will continue to be a safety risk. This risk may increase with the location of bike trails on canal rights-of-way and the adoption of mixed use drainage basins/parks.

#### Emergency Plan

In the future the Emergency Plan area will include the expansion of the City's Sphere of Influence.

#### Crime

The Police Chief believes a smaller town should have 2 officers per 1,000 persons to provide adequate service. Also, for every two new officers another fully marked car will be needed and as time passes current equipment will have to be replaced. The City plans to build a new police station by the year 1997. Development Fees, set at \$655/du, will be used to pay for the station, which has been estimated to cost \$400,000.

#### Aquatic Insect Problem

The expansion of the Wastewater Treatment Plant (Alternative IIAI) will retain additional seasonal waters and when combined with increased residential development there will be a potential for mosquito nuisance and related health problems.

### 5.0 Impact Analysis

#### Earthquakes

If in the future an earthquake of significant magnitude should occur, it could cause casualties and extensive property damage in Gustine. Fire is a secondary effect which could add to the turmoil. Some of the soils in the Gustine area have a high water content and excess fines. These factors represent the poorest type of soil condition for resisting seismic shock waves. The result could mean ground cracking, unequal settlement, subsidence, and other surface

changes. The combined precautions of soil testing, URM inventories and strict construction standards is expected to minimize earthquake impacts.

#### Liquefaction & Tectonic Subsidence

In cases where a liquefaction potential exists, nonstructural, low occupancy land uses are preferable. The city has limited urban development in liquefaction prone soil areas to its sewer treatment facility. This consequently reduces the risk of hazard to City residents and area property owners.

#### Hazardous Buildings

Even though Gustine is not required by law to complete a hazardous building inventory, it would improve overall community safety if the URM building law was used as a guideline to identify potentially dangerous structures. The State Seismic Safety Commission has stated that jurisdictions which address hazards beyond those of URM will further reduce risk of damages due to earthquake hazards. Additionally, new construction and development in Seismic Zone III must adhere to more stringent Uniform Building Code requirements.

#### Potential Dam Failure

The City will coordinate with the local branch of the State OES to come up with early warning system which could divert east bound traffic in the event of Dam failures.

#### Flooding

The extent of future development being proposed in this update will increase the amount of storm water run off and necessitate a Storm Drain Master Plan and negotiations with the Central California Irrigation District (CCID) to accept storm water as required. CCID has indicated that they will review a master plan proposed by the City and work cooperatively to accomplish mutual goals. The City will continue to require development to provide storm drain storage and pumping facilities. Facilities should include conventional, motorized back-up pumps in cases of power failure during storms.

#### Fires

The City will endeavor to maintain an ISO rating of 6 or better as new development occurs.

#### Emergency Evacuation Routes

The City will continue to follow its current evacuation procedures, and work cooperatively with the County OES, to develop a long term strategy.



## Hazardous Materials

The City will routinely require development to strictly adhere to UBC requirements for the construction of storage facilities and will also develop a local emergency response plan for spills. As a matter of policy the city will require Hazardous Material disclosure from all commercial and industrial developments. There are Nineteen such disclosures on file with Merced County Environmental Health.

## Circulation

Safe travel will continue to be provided for vehicles and pedestrians. Cross walks will provide access across busy Highways 33 and 140, as well as, major arterials and into public facilities such as schools. Elementary schools will render additional pedestrian safety by providing crossing guards for children. A pedestrian overpass over State Highway 33 is also being contemplated.

## Canals and Drainage Ponds

If pedestrian/bike trails are established adjacent to canals the potential for hazard will increase and fences will be located to separate the trails from the canal waterway. Also if a joint use for drainage basins and parks is implemented basins will be required to be much more shallow, therefore reducing the threat of drowning.

## Emergency Plan

Currently, an Emergency Plan needs to be completed. The updated Emergency Operations Plan should reflect current OES requirements and be consistent with the County "Multi-Hazard Functional Plan". As Gustine's sphere of influence expands the plan will be revised to include boundary expansions.

## Crime

By the year 2010 it is expected that 16 new officers will be required totalling 22, as well as 8 additional fully marked cars. This will continue to insure a low crime rate within the City. Increases in costs associated with local law enforcement will be worked out in a finance plan and are now paid for in part by development fees.

## Aquatic Insect Problems

The City will develop a management strategy to respond to residential complaints regarding mosquito problems in cooperation with the Merced County Mosquito Abatement District, U.S. Fish and Wildlife Service, California Department of Fish and Game and the Grasslands Water District.

## **6.0 Goals, Objectives and Policies**

**Goal I**      **To protect city residents and property from known seismic and geologic hazards.**

**Objective:**

**A.** A seismic inspection program for existing buildings and residences by 1994.

**Policies:**

1) The city will initiate a program to identify earthquake hazards to existing structures, such as unreinforced masonry (URM) buildings, and determine the appropriate method for correction.

2) Existing critical structures, which were constructed after 1948 will be evaluated for their structural integrity, as part of the City's building rehabilitation efforts.

3) Special precautions to ensure earthquake resistant design will be considered for proposed critical structures such as hospitals, fire stations, emergency communication centers, private schools, high occupancy buildings, bridges and freeway overpasses, in accordance with the Uniform Building Code.

**Objective:**

**B.** Prior to development soils will be tested for liquefaction potential.

**Policy:**

1) Where liquefaction potential exists low occupancy land uses will be designated.

**Goal II**      **To protect city residents from loss of life and protect structures from property damage due to flooding.**

**Objective:**

**A.** A flood protection plan for the city by 1995 to be developed as part of the Gustine Emergency Operations Plan.

**Policies:**

- 1) Work with the Bureau of Reclamation and office of Emergency Services to develop an early warning system to minimize potential storm flood damage.
- 2) To ensure an adequate drainage system in case of flooding by forming an emergency agreement which would allow discharge pumping into the CCID system.

**Objective:**

B. A storm drain Master Plan to be prepared by 1993.

This will provide for management of surface runoff.

**Goal III To protect city residents from personal injury and property damage resulting from wildland and urban fires.**

**Objective:**

- A. To provide an adequate level of fire safety in the city and throughout the planning area, by maintaining an ISO rating of 6 or better.

**Policies:**

- 1) To require built-in fire protection such as sprinklers and fire alarm systems where the City determines that alternate fire protection measures are not adequate.
- 2) To meet criteria for optimal ISO rating including: 1 volunteer for every 250 people, equipment acquisition, fire flow, training, etc.
- 3) Evaluate new industrial or commercial uses, or expansions of existing, on a case by case basis to determine if additional fire flows are required.
- 4) As a deterrent for arson, should arson occur, costs to extinguish the fire should be charged to the guilty party.
- 5) In areas designated as having a very high fire hazard severity, the establishment and maintenance of "clear zones" around new and existing residential structures shall be encouraged.

**Goal IV To provide for safe evacuation of Gustine residents should a disaster occur.**



**Objective:**

- A. City will endorse the Office of Emergency Services "Multi-Hazard Functional Plan" and the evacuation routes prescribed in the Merced County General Plan.

**Policies:**

- 1) The City will on a regular basis send updated information to the local Office of Emergency Services as the city grows, so that the Multi-Hazard Functional Plan can be amended to accommodate the citizens of Gustine.
- 2) State Highways 33, 140 and major roads will be the primary evacuation routes, and other County roads will serve as secondary routes.

**Goal V      To practice prevention and preparedness for Hazardous Material Emergencies.**

**Objective:**

- A. The City will require Hazardous Material disclosures from all commercial and industrial developments.

**Policy:**

- 1) The City shall require development to strictly adhere to UBC requirements for the construction of Hazardous Material storage facilities.

**Objective:**

- B. The City will develop a local emergency response plan to deal with hazardous material emergencies.

**Policy:**

- 1) Local emergency agencies shall have staff trained to deal with Hazardous Material spills.

**Goal VI      To protect all citizens in the Gustine planning area from multiple hazards.**

**Objective:**

- A. To update the Gustine Emergency Operations Plan (EOP), in conjunction with the Office of Emergency Services, to include the entire planning area.

**Policies:**

1) The City of Gustine will work cooperatively with Merced County and the City of Newman and "mutually aid" one another in the Gustine Planning area outside of the city limits.

2) The revised Emergency Operations Plan will be completed before December 1992 and will include, but not be limited to the specific peace-time emergencies of earthquake, fire, and flooding.

**Goal VII To protect citizens of Gustine from personal injury and property damage resulting from unlawful acts.**

**Objective:**

A. To provide an adequate level of law enforcement in the city and throughout the planning area.

**Policy:**

1) To maintain a level of service equal to or better than 1.5 officers per 1,000 persons.

**Goal VIII To protect citizens of Gustine from the nuisance and potential health problems associated with mosquito/aquatic insects.**

**Objective:**

A. In conjunction with the wastewater treatment plant expansion and the potential for more seasonal wetlands, the City will implement an aquatic insect pest management plan.

**Policy:**

1) The formulation of the City's aquatic insect pest management plan will involve the Merced County Mosquito Abatement District, U.S. Fish and Wildlife Service, California Department of Fish and Game and the Grasslands Water District.

# VI - Openspace & Conservation





## CHAPTER VI: OPEN SPACE, RECREATION AND CONSERVATION

### 1.0 Introduction and Purpose

The Open Space/Conservation chapter is a plan for the complete long-range management, preservation and conservation of "Open-space lands" and other natural resources. Gustine has combined these elements because of the interrelated nature of the issues they address. The City has formulated its open space plan and designations in order to conserve agriculture, enhance its recreational and natural resources, and preserve its rural atmosphere.

This Section includes information relating to the management and conservation of the City's natural resources including; wetlands plant and wildlife, soils, agricultural lands, air, water, cultural and historical resources and outdoor recreation. State provisions regarding these issues are broad in scope and consequently overlap with other mandated elements as will be noted.

#### Open Space

The Open Space Element of an adopted city general plan is considered the "Local Open-Space Plan". Any action by the City where open space land is acquired, disposed of or its use is restricted or regulated, must be consistent with this plan. The Gustine plan is consistent with County and Regional open space plans and also includes implementation procedures to ensure that State and Federal provisions are adhered to during the project review process.

"Open-space land" is defined as an unimproved parcel or area of land (or water) which is devoted to open-space and which is designated on a local, regional or state open space plan. The open-space land must also meet the following requirements:

- (1) Open space for the preservation of natural resources which includes areas required for the preservation of plant and animal life, including habitat for fish and wildlife species and other natural resources; areas required for ecologic and other scientific study purposes; bodies of water, which includes streams and their banks, as well as, watershed lands.
- (2) Open space used for the managed production of resources, including but not limited to, rangeland, agricultural lands and areas of economic importance for the production of food or fiber; and areas required for recharge of ground water basins.
- (3) Open space for outdoor recreation, which includes areas of outstanding scenic, historic and cultural value; areas uniquely suited for park and recreation purposes, including areas which serve as links between major recreation and open-space reservations, including utility easements and trails.

(4) Open space for public health and safety, including areas which, because of hazardous or unusual conditions, require special management or regulation. Conditions include flood plains, watersheds, areas presenting high fire risks, areas required for the protection of air and water quality, and water reservoirs.

## Conservation

The Conservation Element overlaps provisions found in the Open-Space, Land Use, Safety and Circulation elements. It differs, however, from other portions of the General Plan in that it is almost exclusively oriented toward natural resources. The Conservation Element emphasizes the conservation, development and utilization of specified resources. In the case of Gustine these resources include soils, water, wildlife, reclaimed land and watersheds. Flood control, as it applies to irrigation canals is also covered in this section.

This element has been developed in coordination with various Federal, State and local agencies including Fish and Wildlife Service, Soil Conservation Service, Department of Fish and Game, Grasslands Resource Conservation District, County Ag Commissioner, the Central California Irrigation District (CCID) and the Gustine Drainage District. CCID will continue to conserve and control water to ag land within the Gustine Soi until such time that land is annexed to the City and detached from the District.

No important mineral resources have been identified in the Gustine Planning Area. Therefore, no sites are designated as areas of statewide or regional significance. The City will establish and incorporate mineral resource management policies into its General Plan should any significant deposits be discovered by the State in the future.

## 2.0 Methodology

Maps prepared by Zentner & Zentner for Merced County were used to help identify "wetlands" as defined and regulated by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. These maps were based on the inspection of aerial photographs and limited field inspections. Additionally, the ecological consulting firm of H. T. Harvey and Associates was employed to perform a special status species survey in the vicinity of the City's wastewater treatment plant which is adjacent to a wetlands complex.

The goals, objectives and policies for this chapter are based generally on the recommendation of environmental experts, existing federal and state legislation and a consensus of public opinion.

In order to determine future park land necessary, Quimby Act ratios were used. Under the Quimby Act (Government Code Section 66477 et



seq) the dedication of three acres of park per 1,000 persons may be required by local government, unless the existing park area exceeds that ratio, in which case a maximum of five acres per 1,000 may be required.

### 3.0 Existing Conditions

#### Wetlands

"Palustrine" wetlands are non-tidal wetlands found along the edges of lakes, rivers, floodplains and in catchment basins. The Grassland wetlands are mostly Palustrine type. The California Natural Diversity Data Base has listed some of these one mile west of Gustine. The Grassland wetlands are maintained by artificial water sources including; floodflows from the San Joaquin River numerous tributaries and rain water.

Wetlands are of value because the combination of shallow water and vegetation can remove pollutants from the water, increase nutrient production, provide flood storage and groundwater recharge, reduce storm erosion, create waterfowl and shorebird habitat, and provide passive and active recreation.

There are no wetlands within the current or proposed Soi boundaries.

Mixed wetland and upland areas east and south of the City consist of flats and marshes while the lands adjacent to them are agricultural. The mixed wetland designations are further defined as follows:

Flats are sparsely to poorly vegetated plains often found at the edges of saline creeks. Vegetation is varied but sparse with some saline flats dominated by salt grass while others contain various species of rush and annuals. The San Joaquin Kit Fox uses these lands and the Blunt-Nosed Leopard Lizard and other small mammals may also be found here.

Marshes typically occur near or in slow moving or ponded water and are usually densely vegetated with non-woody species such as cattails, rushes, and tules. They are common in the historic oxbows of the San Joaquin River, especially the east and west Grasslands areas. Marshes are favored habitats for migrating waterfowl, especially surface-feeding ducks such as mallards, pin-tail, widgeon, and teal.

#### Plant and Wildlife

Currently, land within the Gustine Soi which has not been developed, has been cultivated for agricultural use and most native habitats have been replaced.



## Soils

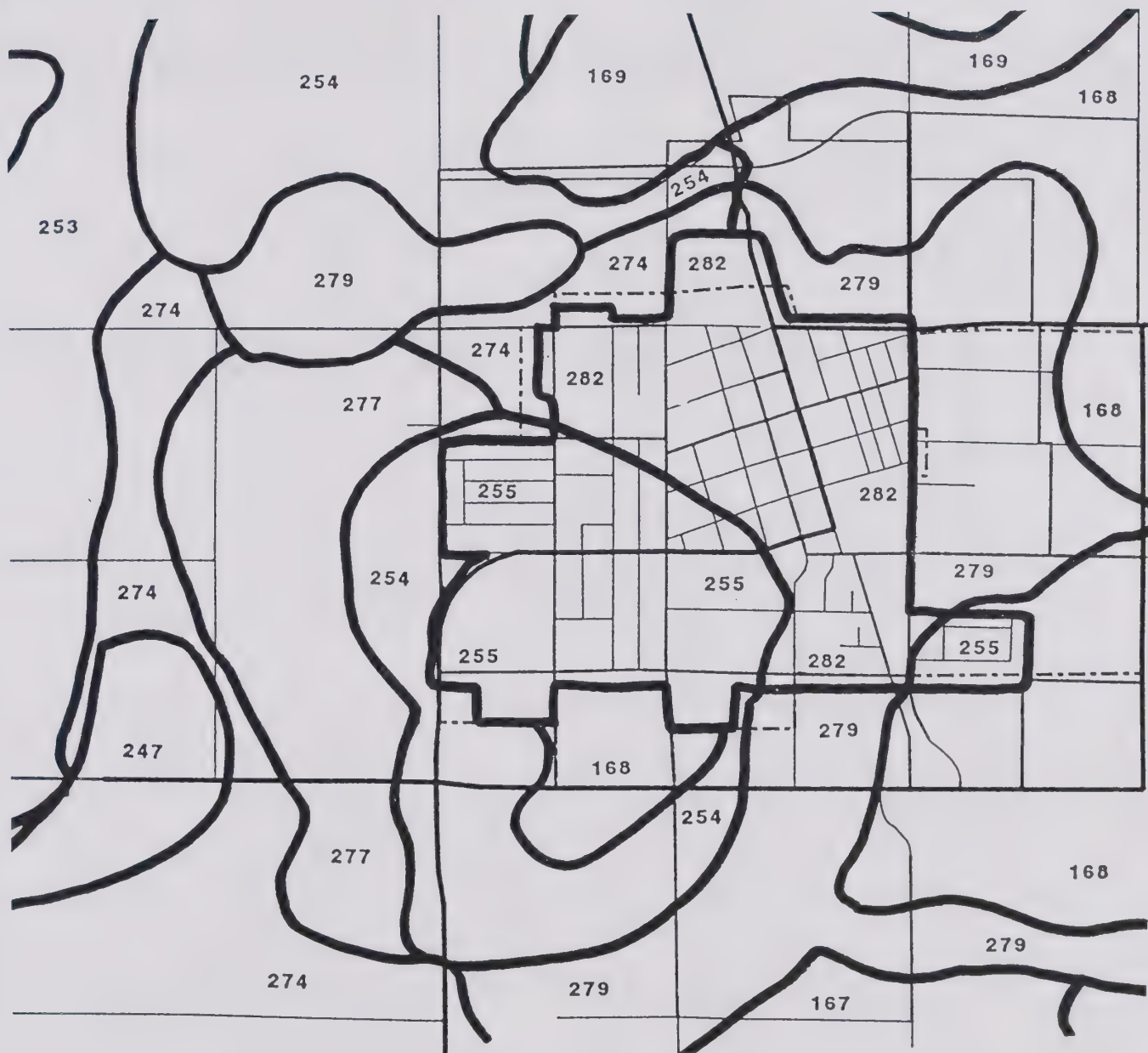
Soil resource protection and management issues include loss of soil through erosion, depletion, contamination and conversion. In the Gustine area flat terrain, as well as a high level of erosion control awareness and practice by farmers, minimizes soil erosion. Presently, there are no significant problems with pesticide contamination. Instead soil contamination problems in the Gustine area are associated with increased salts and selenium due to agricultural drainage and irrigation practices.

Soils could be depleted with inappropriate farming practices, however with properly managed agricultural practices organic content increases. In areas of urban development natural and man made chemical contamination is another concern.

Due to the high salt content of some Gustine soils, and a high water table, agricultural practices need to be carefully managed. Agricultural and other open space land uses are capable of renewing and protecting the soil's productive potential and in preserving its availability. Land uses requiring structural development eliminate the soil's productive use therefore conversion of valuable soil resources from productive to consumptive uses should be minimized. Further discussion on Ag land preservation and an Important Farmlands map are included in the following section on Agriculture.

Almost half of the land within the proposed Soi is being used for Agricultural purposes and, according to the soils map, a large percentage of that land is rich agricultural land which does not have excess clay content. Even some less productive area soils have been enhanced by the use of tile drains. This artificially lowers the water table and gives local farmers a degree of success with orchards on the east side of town. Soils within the Proposed Gustine Soi are predominately Woo (279), Stanislaus (254), and Dosamigos (168). Also within this area are Dosamigos (169) and Woo (274, 277). Surrounding the Wastewater Treatment Facility are soil types Britto (142), Pedcat (236) and Triangle (256) as shown on the soils map Figure 27. Additional soils which are already within the current Soi are Stanislaus (255) and Woo (282). (Source: Soil survey for Western Merced County 1990).

Characteristics of the Gustine soils include their ability to support various flora and fauna. Most of the soils are also appropriate for recreational uses like paths, trails, golf fairways, camp, picnic and playground areas. Dosamigos (168) is only moderately useful for camping, picnic and playground uses due to its slow percolation rate. Dosamigos (169) has severe problems for play areas and golf fairways because of the high clay content, and has moderate utility for other recreational uses. Soils should be tested before recreational development occurs. Some of the limitations are due to dustiness, high erosion potential, slow percolation, and a high clay content (refer to Appendix D-1).



Soils Map

Figure 27



Gustine soils do not have potential as a good resource for construction materials and the soil suitability for providing sand and gravel material is improbable.

The majority of the soils have a moderate to severe shrink-swell problem which limits the location of dwellings with or without basements, as well as, commercial buildings, and streets and roads. Dosamigos (169) has the most severe development limitations within the proposed Soi. The few choice sites for development also offer the best soils for agriculture and recreational uses. Most of the soils are rated "moderate" for shallow excavations because they are too clayey and wet. Most soils are judged to be good for landscaping, but a few are ranked "severe" because they possess too much clay.

### Agricultural Lands

Agriculture provides the major economic base for Gustine, as it does for other westside rural communities. In 1990, almost 34% of Gustine area employment was in agriculture and its related services. Currently, the major industries are milk product processing, nut processing and other agricultural related services such as crop dusting and land leveling.

There are approximately 1700 acres of active farmland within Gustine's Proposed Soi. 635 acres of this are proposed to continue in agricultural uses and if portions were annexed they would be zoned Ag-Commercial. There are currently 474 acres of agricultural land within the City's existing SOI boundary (see Figure 28). Gustine is proposing to designate another 500 to 600 acres for urban land uses in order to accommodate their development needs for the next 20 years. Some of these urban land use designations occur in areas with less than prime soils however the greater majority are in the direction of prime soils. Figure 29 illustrates areas identified by the Soil Conservation Service as Prime Farmland and nominated for State Important Farmlands.

### Water

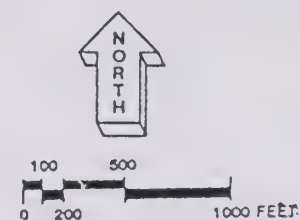
Gustine is within the Gustine Watershed and Groundwater Recharge Area. Water quality in the Gustine area is generally good, but because of the threat of selenium contamination the community is concerned. Gustine is also included within a large area on the westside of Merced County that has more than 1,000 ppm Total Dissolved Solids (TDS). The City water supply is drawn from four wells approximately 200 feet deep.

West side surface water has high salinity rates due to the sediments that comprise the Diablo Range of the Coastal Mountains. The quality of groundwater is also determined by salt concentrations in the soil and to a lesser degree by the level of nutrients, pesticides and other contaminants. Low quality groundwater is found throughout much





ACTIVE  
FARMLAND



**Active Farmlands**

**Figure 28**



- P

**PRIME FARMLANDS**  
Lands with the best combination of physical and chemical features for the production of agricultural crops.
- S

**FARMLANDS OF STATEWIDE IMPORTANCE**  
Lands with a good combination of physical and chemical features for the production of agricultural crops.
- U

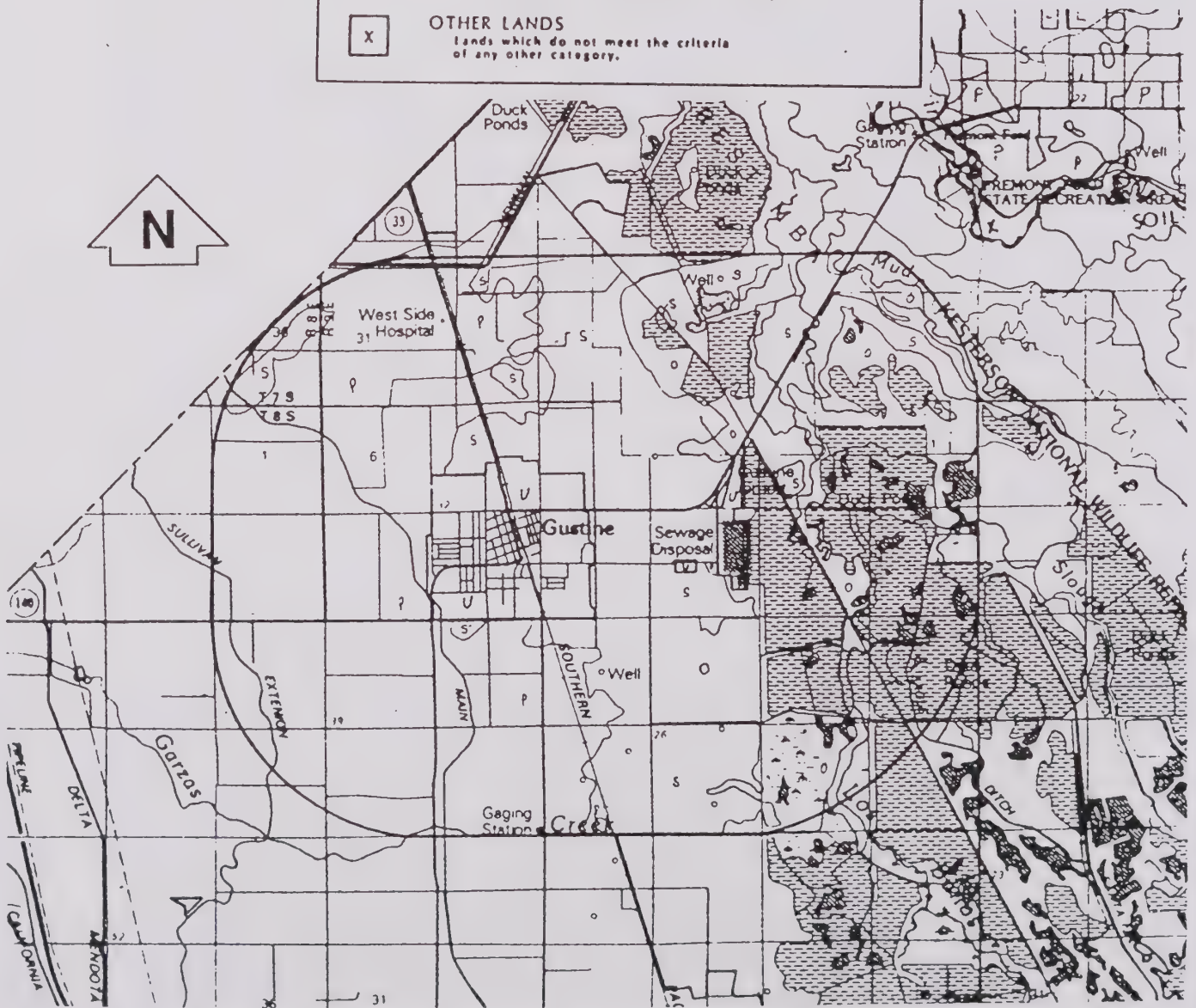
**UNIQUE FARMLANDS**  
Lands of lesser quality soils used for the production of the State's leading agricultural cash crops.
- L

**FARMLANDS OF LOCAL IMPORTANCE**  
Lands of importance to the local agricultural economy, as determined by each county's board of supervisors.
- G

**GRAZING LANDS**  
Lands on which the existing vegetation is suited to the grazing of livestock.
- D

**URBAN AND BUILT-UP LANDS**  
Lands occupied by structures with a building density of at least one unit to one and one-half acres, approximately six structures to a ten-acre parcel.
- X

**OTHER LANDS**  
Lands which do not meet the criteria of any other category.



**Important Farmlands/Prime**

**Figure 29**

of the San Joaquin Valley Basin with high levels of soil boron and TDS occurring west of the San Joaquin River. Gustine also has high concentrations of Nitrates, DBCP, chloride, lead and sulfate, as well as a hard water problem. Groundwater quality affects drinking water, ag irrigation and water diverted to wildlife habitats.

In the Gustine area where there is a high water table, salt-laden water accumulates in the soil and steadily rises as irrigation and leaching continue. Tile drains and groundwater pumping are used to control subsurface drainage which in turn is recirculated for irrigation or discharged through drainage ditches to marsh lands of the Grasslands Water District.

A Water Quality Control Plan has been adopted by the State Resources Control Board and the Regional Water Quality Control Board. The purpose of this plan is to provide a program to preserve and enhance water quality and to protect water supplies for beneficial uses. Gustine supports this plan and will use it to preserve its local water resources.

#### Flood Control

Many of the problems that Gustine has had with flooding are associated with its flat terrain, clay soils and high water table. There currently is no Storm Drain Master Plan. Drainage water now flows to the east, but there is an absence of adequate municipal drainage north of North Ave.

#### Air Resources

The City of Gustine is located near the central portion of the San Joaquin Valley Air Basin (see Figure 30). The Air Quality of a region is determined by the amount of background pollutants present, physical location, quality of emissions and climate or the ability of the environment to disperse and remove pollutants (see Appendix D 5-7). The San Joaquin Valley Air Basin is considered a non-attainment area for both ozone and particulates. Non-attainment refers to the fact that the federal ambient air quality standards are violated in the region.

Emissions from urban centers to the north and west, including the Bay Area, contribute to the emissions and ozone found in Merced County. The major sources of ozone are vehicles, industry, the combustion of fuels, the evaporation of paints, solvents and aerially applied pesticides. Most particulate emissions are from stationary sources, primarily entrained road dust, construction activity, agricultural tilling/burning and industrial sources.







**San Joaquin Valley Air Basin**

**Figure 30**

Gustine contributes to regional air pollution through various agricultural activities and vehicle emissions. Guidelines for a valley wide regional approach to ozone and particulate emission reduction are being adopted, including measures to reduce emissions from industrial and domestic sources, and agricultural tilling and pesticide application.

### Cultural Resources

The Yokut Indian tribe inhabited the San Joaquin Valley for decades until European diseases eliminated them. The Yokuts and earlier tribes left a legacy of historical culture. In the Gustine area eighteen Native American Indian village sites have been revealed during research for the Wastewater Treatment Plant expansion. These are located primarily in the Kesterson Reservoir area. Only a small percentage of Gustine has been surveyed for evidence of cultural resources, and most of the area's archaeology is unknown.

Types of archaeological sites that could occur in Gustine include (but are not limited to) occupation sites, indicated by structural features such as housepits, ceremonial ("dance house") locations, and remains of sweathouses and storage structures, which are often found in areas that have been organically enriched by the accumulation of domestic debris. Occupation site deposits, often called "midden sites", are rich in materials such as charcoal, burned bone, chipped and ground stone, fire-cracked rock, baked clay, shell and glass (trade) beads, and sometimes pottery.

Other types of archaeological sites include cemeteries, isolated burials, quarry sites, petroglyph (rock carvings) and pictograph (rock paintings) sites, kill sites where animals were butchered, and sites where certain types of resources (stone, vegetal, clay, paint pigments) were obtained or processed (bedrock mortars).

### Historical Sites and Buildings

Gustine was originally established as a "Colony Center" in 1895. The Federal Register lists Bridge # 39C-3 on Carries River Road over the Merced River in Gustine as a California Historic Truss Bridge. Though this is the only item listed, local residents have identified several buildings of historical significance which should be added to the State or Federal Register.

Historic sites likely to be found in Merced County include old homes, adobes, cabins and structures or features related to agriculture, mining, logging and other enterprises. Historic resources are recognized as significant if they are more than 50 years old. Some structures or features have been used more recently, and because of their character, associations or appearance are of local, county, state or national significance. There are several architecturally distinctive buildings in downtown Gustine which were built in the early 1900's and serve as landmarks for this community.



## Outdoor Recreation

The City of Gustine presently has four parks. They are Harry Schmidt Park a City/County regional park, Henry Miller Park a community park, and Pioneer and Sherwood neighborhood parks totaling 36.7 acres (see Table 24). City residents also have access to public open space at Gustine Elementary and High Schools. The school space provided is 14.3 acres. Proposed parks have been identified in Figure 31.

Existing park facilities include a newly renovated swimming pool, a community center, softball fields (some with concessions), tennis courts, basketball courts, horseshoe pits, playground equipment, barbecue and picnic areas, picnic shelters with kitchens and restrooms. The City Recreation Commission has created a tentative list of needed park improvements which includes: lights at the existing little league field, additional tennis courts, area lighting, and a compact par course in Harry Schmidt Park; and an additional ball field. Recreational activities in Gustine include a Fourth of July celebration, Our Lady of Miracles celebration, organized adult slow pitch and youth baseball, public swimming and various summer programs.

Gustine has a ratio of 9 acres of park land per 1,000 persons. The existing ratio more than adequately meets the 5 Acre per 1,000 person standard which the City will maintain as it approves development in the future.

The City has been collecting park in-lieu fees on new residential development to maintain existing parks. Park land reserve is being designated at various locations in the Gustine SOI and will be developed when populations are large enough to support them and/or as new development agrees to dedicate land for recreational purposes.

### 4.0 Future Conditions

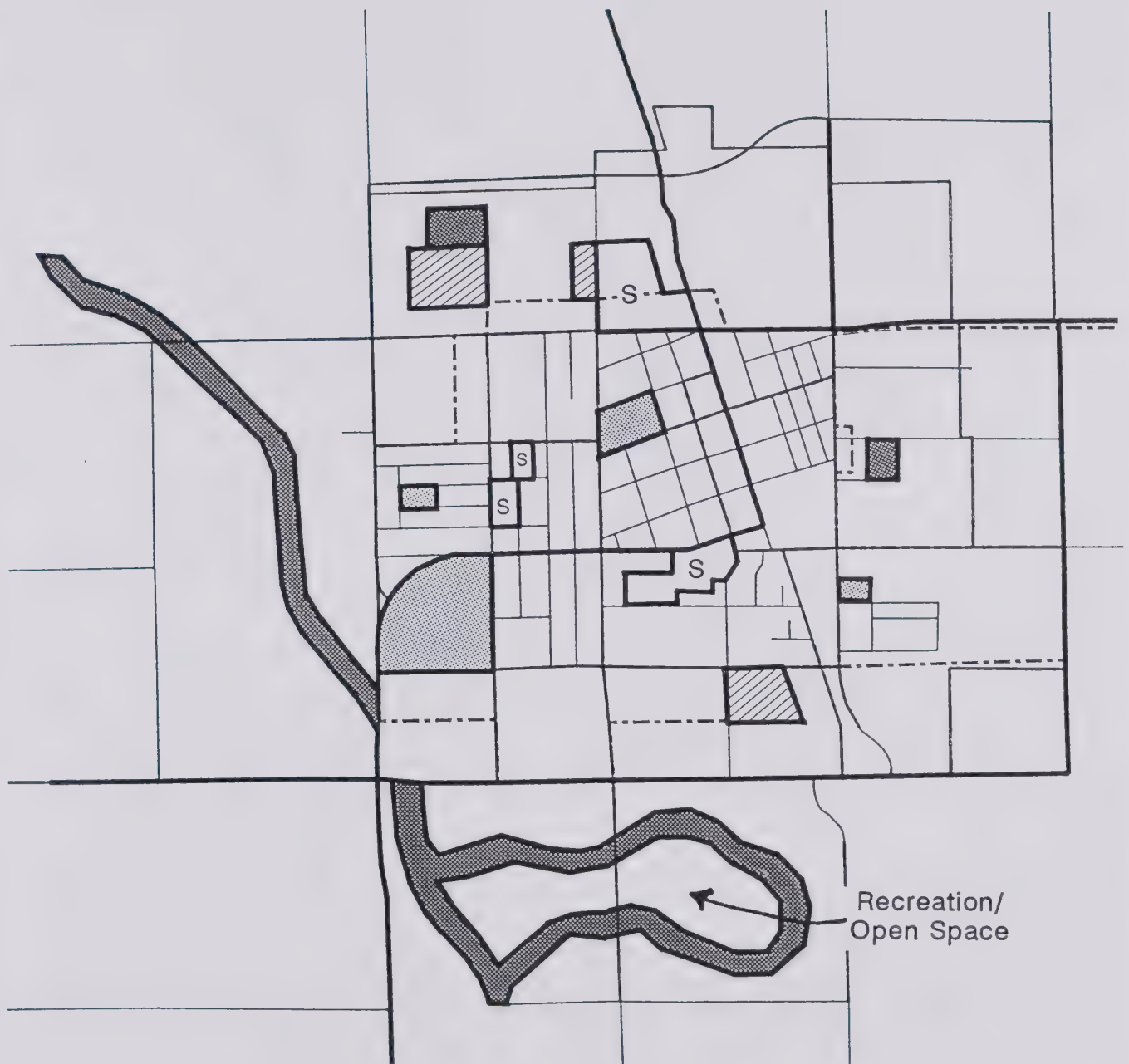
#### Wetlands

According to the Fish and Wildlife Service, the area east of Sante Fe Grade represents a significant wetlands complex, is designated Merced County sensitive habitat area, and is the Service's West Grasslands Wildlife Management Area. Grassland personnel have noted that there are a significant amount of wetlands west of Sante Fe Grade toward the City of Gustine. Wetlands exist immediately east of, and possible on, the proposed wastewater treatment plant site.




The City's proposed Sphere boundary is west of the wetlands and the only "urban" development currently planned is the expansion of its wastewater treatment facility.

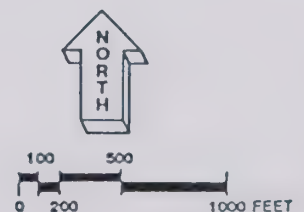
PARKS												
NAME	LOCATION	ACRES	TYPE	OWNERSHIP								
Harry Schmidt Park	State Hwy. 33		Community Park	City/County								
Henry Miller Park	Sixth St. between Second & Third Avenues	4.5	Community Park	City								
Pioneer Park	East Ave. & Wallis Road	1.1	Neighborhood Park	City								
Sherwood Park	Sherwood Drive between Edith & Verde Drs.	1.2	Neighborhood Park	City								
New Park (planned)	Northeast of East Ave. and Carnation Rd.	5.0	Neighborhood Park	City								
New Park (planned)	Northeast of Jensen and Fentem Roads	5.0	Neighborhood Park									
New Park (planned)	Southeast of Fentem Road & CCID canal	5.5	Strip Park									
New Park (planned)	East of CCID canal, various locations	9.1	Strip Park									
		SUBTOTAL	ERR									
SCHOOLS												
Gustine Highschool	North Avenue at State Highway 33	9.0	High School	District								
Gustine Elementary	Grove Avenue and State Highway 33	5.3	Elementary School	District								
Our Lady of Miracles	Southeast of Lucerne & Linden Avenues		Catholic School	Private								
		TOTAL	ERR									
FACILITIES												
NAME	TENNIS BALLFIELD	COURT	PLAYGROUND	HORSESHOE PITS	PICNIC AREA	PICNIC SHELTER	RESTROOM	SWIMMING POOL	BASKETBALL COURT	FOOTBALL STADIUM	MISC. PLAY FIELDS	COMMUNITY CENTER
Harry Schmidt Park	2 (1 Lt.)	4	yes	yes	yes	yes	yes					yes
Henry Miller Park			yes		yes	yes	yes	yes				
Pioneer Park			yes			yes						
Sherwood Park			yes			yes				yes		
SCHOOLS												
Gustine Highschool	2									yes	2	
Gustine Elementary	1		yes								1	
Our Lady of Miracles									yes		1	
IMPROVEMENTS PLANNED												
		RECREATION ACTIVITIES										
Harry Schmidt Park:		Harry Schmidt Park:										
Additional lighting for existing ballfield		Men's and Womens slow pitch										
expanded parking		Youth Baseball										
additional tennis courts		Misc. summer programs										
area lighting												
parcourse		Henry Miller Park:										
		July 4th celebration										
new park:		Our Lady of Miracles celebration										
Ball field		Public swim and swim team activities										
		Misc. summer programs										

CURRENT LEVEL OF SERVICE 10 ACRES PER 1,000 PERSON MAXIMUM LEVEL REQUIRED BY QUIMBY ACT 5 ACRES PER 1,000 PERSONS  $(12,255/1000) \times 5 = 61.28$  ACRES



# LEGEND

S	Existing Schools
	Proposed Schools
	Existing Parks
	Proposed Parks



Existing And Proposed Parks

Figure 31



## Plant and Wildlife

There is a possibility that some scarce plants and wildlife could reoccupy fallow farmlands which are uncultivated for many years. Sensitive plants and wildlife may be found in flats, marshes and adjacent fallow farm land (see Figure 32). Possible endangered and threatened plants and wildlife which could reinhabit these areas have been identified by the Department of Fish and Game in Table 25.

## Soils

As development occurs the amount of agricultural land within the sphere of influence will decrease, therefore contemporary agricultural practices will need to be carefully applied so as not to contaminate the remaining ag soil as long as it is cultivated. Future development may also result in soil contamination from urban sources. The development proposed in the Land Use Element will eliminate some soil as a valuable local resource.

## Agricultural Lands

As the City grows it is inevitable that agricultural land will be converted to an urban use within the City's Sphere of Influence.

## Water

Future growth in Gustine will mean a greater water demand for urban uses, although with the conversion of agricultural land less water will be utilized for irrigation within the Sphere of Influence. Future development also means more paved surfaces and the reduction of recharge areas.

## Flood Control

As residential development occurs the inadequacy of the storm drainage facilities will increase. Current drainage flows toward low lands and in an actual flood could back up to flood the east side of town, therefore it is believed that some emergency plan to pump drain water into the CCID canal should be worked out.

## Air Resources

As growth continues there is a potential for increased air pollutants and the further degradation of air quality. This will be a consideration in the approval and conditioning of new development.

## Cultural Resources

As open land develops the potential for damaging or disturbing cultural resources becomes more likely. Disturbance or destruction of cultural resources may result from any type of activity that involves disturbing the earth or removing existing structures.





TABLE 25

LISTED ENDANGERED AND THREATENED SPECIES AND  
CANDIDATE SPECIES THAT MAY OCCUR IN THE AREA OF THE  
PROPOSED GENERAL PLAN FOR THE CITY OF GUSTINE;  
MERCED COUNTY, CALIFORNIA

Listed Species

Birds

- Bald eagle** (*Haliaeetus leucocephalus*) (E)  
**Aleutian Canada goose** (*Branta canadensis leucopareia*) (E)

Invertebrates

- Valley elderberry longhorn beetle** (*Desmocerus californicus dimorphus*) (T)

Candidate Species

Birds

- Tricolored Blackbird** (*Agelaius tricolor*) (2)  
**White-faced ibis** (*Plegadis Chihi*) (2)

Mammals

- Greater Western Mastiff-Bat** (*Eumops perotis californicus*) (2)  
**San Joaquin Pocket Mouse** (*Perognathus inornatus inornatus*) (2)  
**Nelson's Antelope Ground Squirrel** (*Ammospermophilus nelsoni*) X  
**San Joaquin Valley Woodrat** (*Neotoma fuscipes riparia*) (2)  
**San Joaquin Kit Fox** (*Vulpes macrotis mutica*) (E)(T)(2)

Amphibians

- California Tiger Salamander** (*Ambystoma tigrinum californiense*) (2)  
**California Red-legged Frog** (*Rana aurora draytoni*) (2)

Reptiles

- Giant Garter Snake** (*Thamnophis couchi gigas*) (E)(2)

Invertebrates

- Cierro Aegialian Scarab Beetle** (*Aigialia concinna*) (2)  
**San Joaquin Dune Beetle** (*Coelus gracillis*) (1)

Plants

- Hispid bird's beak** (*Cordylanthus mollis* supsp. *hispidus*) (2)  
**Delta Coyote Thistle** (*Eryngium racemosum*) (2)

Legend

- (E) - Endangered (T) - Threatened (CH) - Critical Habitat  
(1) - Category 1: Taxa for which the Fish and Wildlife Service has sufficient biological information to support a proposal to list as endangered or threatened.  
(2) - Category 2: Taxa for which existing information indicated may warrant listing, but for which substantial biological information to support a proposed rule is lacking.



## Historical Sites and Buildings

Historical sites and Buildings will be effected as the downtown commercial area is redeveloped. All historical buildings run the risk of being changed or destroyed if they are not recognized as important and listed on State and Federal registers.

## Outdoor Recreation

New park sites will be necessary as the population grows. In the year 2010 there should be a minimum of 54 acres of dedicated park land based on population projections. The addition of new parks would also increase City maintenance costs.

In addition to the social need for additional parks, the criteria that should be considered as they are cited include; joint uses such as strip parks and bike paths along canal reservations, detention basin-park development, and development of parks and recreational facilities in conjunction with the Gustine Unified School District.

## 5.0 Impact Analysis

### Wetlands

The Gustine SOI is well outside of the mixed wetland and upland area discussed earlier. However, the City is negotiating to buy land outside of its SOI in order to expand its wastewater treatment facility. The wastewater facility properly developed and managed will maintain and enhance the outstanding natural biological value of the area, therefore, the City does not anticipate any significant impacts. The plant may need to be expanded again after the year 2010, however there should be adequate area in current land acquisitions to accommodate additional growth without jeopardizing wetlands.

### Plant and Wildlife

The long term impacts of expanding the Gustine SOI are not judged to be significant to plant and wildlife habitat provided land within the SOI is not left fallow for long periods of time. In order to preclude the reestablishment of wildlife habitat within areas designated for future urban development, the City should encourage agricultural cultivation. Where this practice fails, or there is some question about the presence of endangered plant or animal species, the City should require new development in outlying areas to perform a biological inventory as part of a General Plan amendment, annexation or as part of a specific plan.

## Soils

Some soils are not suitable for recreational uses due to ponding, wetness, slow percolation rate, excess sodium, erosion potential, and a high clay content, so soils should be tested before recreational development occurs.

Since Gustine soils do not have much potential as a resource for construction materials, these materials, except for some roadfill, will have to be imported.

The majority of the soils have a severe shrink-swell problem which limits the location of dwellings with or without basements, as well as, commercial buildings, streets and roads. Because of this, soils need to be examined before development occurs and proper engineering should be applied. Due to ponding, or too much sodium, topsoil for landscaping may also have to be imported in some areas.

## Agricultural Lands

The City's objective for areas inside of the SOI will be to preserve prime agriculture and producing farm land until such time as other non-prime farm land is exhausted. Since consistency between the County and City Plans is imperative for successful implementation, it has been recommended that the City of Gustine adopt the policies of the Merced County General Plan where they apply to the City's future SOI expansion. These policies invoke the use of specific criteria for enlarging and/or adjusting the Gustine SOI boundary for improving the viability of agricultural operations and promoting the conservation of agricultural lands.

Agricultural lands that should be considered for conservation are those with Capability Class I and II soils as defined by the SCS Survey (which is the basis for identifying prime ag soils on the State Important Farmlands Map). Also, poor soils which are producing agricultural commodities should be appraised for purposes of conservation.

## Water

The City of Gustine will adopt policies that are consistent with the Water Quality Control Plan and will also promote the use of open space to preserve critical recharge areas to replenish groundwater resources.

## Flood Control

The City should establish its own programs for development and maintenance of drainage facilities in order to accommodate new development.



As part of this program Gustine will secure a long-term agreement with CCID or other irrigation districts (if necessary) to accept storm water runoff in an emergency. The City will also prepare a Storm Drain Master Plan with designated drainage zones. In order to implement this, the city will require that new development pay for future amendments or additions to drainage zones, and current acquisition of detention basin sites, construction of pipelines and pump stations, and replacement of old catch basins, inverted siphons, and pump stations. Over and above new development, ongoing maintenance expenses may necessitate increases in user fees.

The City needs to define storm drainage zones to coincide with planning boundaries, negotiate and implement agreements with CCID and, where feasible, establish new detention basins in conjunction with parks.

#### Air Resources

Once the valley-wide regional guidelines are adopted, the City intends to adapt these guidelines to local circumstances.

Local implementation of California's Clean Air Act (AB 2595) may result in more restrictive mitigation measures for residential developments built after January 1989. This could include the reduction of fugitive dust during construction activity and the installation of EPA certified fireplace inserts to promote more efficient combustion.

Additionally there may be some new requirements for indirect source emissions (motor vehicles). In order to help achieve net emission reductions in Gustine and county-wide transit services, non-motorized systems and local ridesharing services could be improved. (see Circulation Element).

#### Cultural Resources

On-the-ground surveys for archaeological cultural resources are necessary prior to development. Major impacts to some types of archaeological cultural resources include residential development, agriculture (especially field leveling and deep "rip" plowing), highway and levee construction. Disturbance or destruction of cultural resources may result from any type of activity that involves disturbing the earth or removing existing structures. Before development of this type occurs, subsurface tests should be required to prevent the destruction or disturbance of cultural resources. Many archaeological sites in the Central Valley have been covered by alluvial deposits and these will not necessarily be evident by inspection of the ground surface alone.

Many archaeologists consider all types of archaeological sites to be significant, that is, they have the potential to produce information of value. Therefore all archaeological sites merit recordation,



mapping and investigation at a degree sufficient to obtain essential information, especially if a site will be impacted directly or indirectly as a result of a proposed action or development. Assessment of the quality of significance should be made on a case-by-case basis, and not upon an arbitrary point score system or upon some other type of "cookbook" approach.

### Historical Sites and Buildings

The city believes that it would be appropriate to inventory local historic buildings and sites and select candidates for the State or National Registers to preserve some of Gustine's history.

### Outdoor Recreation

Currently within the proposed Sphere of Influence boundary there are approximately 36.7 acres of existing parkland. If the maximum five acre per 1,000 person standard is required, then an additional 17.3 acres should be acquired for parkland to be planned before the year 2,010.

This figure may result in the creation of neighborhood parks within residential areas. Additional recreational land uses may be necessary such as golf courses and playing fields unless these can be provided at school sites.

New City parks used in conjunction with detention basins would provide a more aesthetically pleasing method of drainage control. This is one alternative for development of neighborhood parks within new subdivisions. A variation of this would be to convert existing detention basins to joint detention basin/park facilities. In order to accomplish this detention basins would have to be shallow and could not retain water continuously throughout the year.

Cooperative park and school facilities development would allow the City to establish parks and recreation facilities in collaboration with the development of new school sites. While joint development of facilities would ensure more efficient use of recreational investments, it poses some limitations on site location and types of facilities.

## 6.0 Goals, Objectives and Policies

**GOAL I** To preserve existing open space and provide additional open space for recreation, aesthetics and protection from hazards.

### Objectives:

- A. To preserve wetlands by ensuring that Soi expansion does not infringe on them.

- B. To provide protection of endangered plant and animal life.
- C. The addition of 25 acres of parks situated throughout the community and phased with population growth through the year 2010.

**Policies:**

- 1) SOI expansion will not include any lands designated wetlands.
- 2) The wastewater treatment plant expansion will be designed to enhance wetland wildlife habitat.
- 3) The City will require development to perform biological studies as part of General Plan amendments, annexation and/or Specific Plans prior to the development of fallow land within the Soi.
- 4) Every subdivider who subdivides shall dedicate a portion of such land, pay a fee or both, for the purpose of providing park and recreation facilities to serve the future residents of such subdivision.
- 5) Require construction of neighborhood parks and walkways with new development and, where feasible, combine parks and paths with schools, detention basins, and canal right-of-way.
- 6) Prepare a park trail master plan which connects existing parks and schools by 1992, which will be updated as new parks are planned for development.
- 7) Prepare financing plan for Bike trail system and program in the 1992 RTIP.

**GOAL II      To manage natural, cultural and historical resources properly.**

**Objectives:**

- A. To preserve prime agriculture and producing farm land within the SOI until such time as other non-prime farm land is exhausted.

**Policies:**

1) Non-prime farm land shall be developed prior to the development of any prime agriculture and producing farm land. This will be monitored on a project by project basis. A prime/nonprime soils inventory will be kept of undeveloped parcels greater than 20 acres within the Gustine SOI. If a project is warranted, but located on prime soils and a nonprime site is zoned appropriately for the project, the Planning Commission and staff will recommend against the project.

B. A municipal water conservation program by 1994.

**Policies:**

1) To promote citizen participation in water conservation.

C. A long-term agreement with CCID or other irrigation or drainage districts to accept emergency storm water runoff by 1993.

**Policies:**

1) CCID shall be routinely notified as new development is proposed which will affect the drainage system.

2) Development shall assist on a cost share basis in the acquisition of land for detention basins, the construction of pipelines and pump stations and the replacement of old catch basins, inverted siphons, and pump stations.

D. A Storm Drainage Master Plan to coincide with planning boundaries by 1993.

**Policies:**

1) Development should bear the cost of engineering studies which add to or amend the City's Storm Drain Master Plan. The City will submit any amendments to the CCID for review and comment before any new drainage systems are adopted.

E. "Implement or enforce valley-wide and Merced County specific Air Quality Control measures" as they apply to Gustine.



**Policies:**

- 1) Promote housing retrofits, ridesharing and minimize dust created by construction activity.

**F.** A cultural resource plan by 1996.

**Policies:**

- 1) Prior to development all projects shall require on-site surveys for evidence of archaeological cultural resources.
- 2) Should evidence of archaeological cultural resources be found, development will be delayed until the significance of the find is determined, and all information can be gathered.

**G.** A Historical Building Preservation Plan by 1993.

**Policies:**

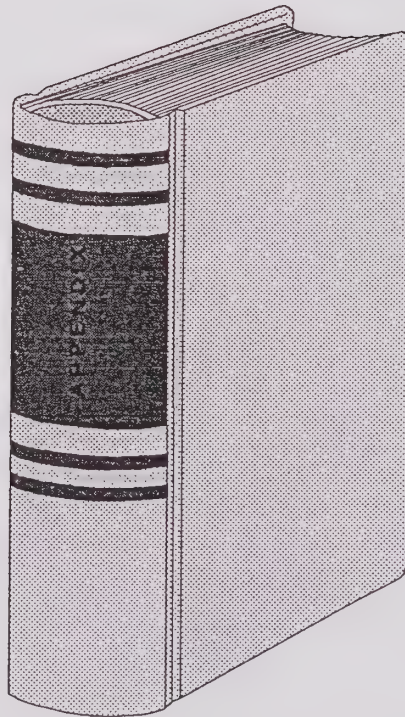
- 1) Set up a Historical Preservation committee with local citizens and historical and architectural professionals to oversee and inventory the City's historical resources and draft policies for their preservation.

**H.** A Historic District and architectural guidelines to ensure compatible architectural styles for new development within the district by 1995.

**Policies:**

- 1) Determining the Historical District boundary in the downtown area.
- 2) Citizen participation will be encouraged, especially by those with businesses within the Historical District, for review of architectural guidelines before they are adopted.
- 3) Nominate historic buildings to be listed on the State and Federal Historic Registers.
- 4) Grants will be applied for, which obtain to historic preservation.

# VII - APPENDIX



RTIP ROAD MAINTENANCE AND REPAIR FOR GUSTINE								
ROADS PROGRAMMED								
PROJECT	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	TOTAL
MISCELLANEOUS ROAD MAINTENANCE	237.4	242.2	249.4	-	-	-	-	729.0
ROADS UNPROGRAMMED								
PROJECT	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	TOTAL
MISCELLANEOUS ROAD MAINTENANCE	24.0	24.0	30.0	30.0	30.0	30.0	30.0	198.0
AERONAUTICS								
PROJECT	1990/91	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	TOTAL
OPERATION AND MAINTENANCE	5.0	5.0	5.0	5.0	5.0	5.0	5.0	35.0

NOTES: 1. Lead Agency is Gustine

2. Funding Sources will include both state and local funds



## AVERAGE DAILY TRIPS BY PHASED LAND USE

PHASE I			
LANDUSE	ACRES	LOCATION	ADT
Low Density Residential	30.0	SE corner of Sullivan Rd. & Hwy. 33	675.0
	51.0	SW corner of Sullivan & Hunt Rds.	1148.0
Medium Density Residential	58.0	SW corner of Fentom Rd. & Jensen Rd.	2610.0
	23.0	SE corner of Fentem Rd. and Jensen Rd.	1035.0
	25.0	NE corner Sullivan Rd. & Hwy. 33	1125.0
	20.0	NW corner Mills Rd. & Sullivan Rd.	900.0
	25.0	NE corner Mills Rd. & Sullivan Rd.	1125.0
High Density Residential	22.0	NW corner Railroad Ave. & Sullivan Rd.	990.0
	6.0	NW corner East Ave. & Carnation	412.0
Light Industrial	40.0	NE of Sullivan Rd & SPRR crossing	3805.0
Heavy Industrial	25.3	NW of North Ave. & Hwy. 33 intersection	496.0
Central Business District	1.6	Hwy 33 between Second & Third Avenues.	9297.0
Neighborhood Commercial	6.0	NW corner Railroad Ave. & Sullivan Rd.	6973.0
	5.0	SE corner Hunt Rd. and Hwy. 140	3650.0
Commercial General Services	37.0	NE corner of Hunt Rd. & Hwy. 140	27722.0
	7.5	SE corner of Carnation & East Ave.	5619.0
Commercial Transition	3.5	NE corner of Second Ave. & Third St.	2482.0
Highway Commercial	4.0	NW corner Sullivan Rd. & Hwy. 33	2997.0
	4.0	SW corner Sullivan Rd. & Hwy. 33	2997.0
Ag-Commercial	52.0	NW corner Sullivan Rd. & Hwy. 33	608.0
	22.0	SW corner Sullivan Rd. & Hwy. 33	257.0
	24.0	between Hunt Rd & SPRR S/O Sullivan Rd.	281.0
	40.0	SW of Kniebes Rd & Carnation	468.0
	40.0	NW of Kniebes Rd & Sullivan	468.0
	114.0	NW of Kniebes Rd & Carnation	1334.0
Public: Schools	Highschool	0.0 existing	56.0
	K-8th	15.0 NW corner Railroad Ave. & Sullivan Rd.	612.0
Parks		1.0 SE corner of Sullivan Rd. & Hwy. 33 (along canal)	6.0
SUBTOTAL	701.9		80148.0

PHASE II			
LANDUSE	ACRES	LOCATION	ADT
Low Density Residential	39.0	NW corner Noble & Hunt Rds	878.0
	45.0	E of Jensen, N of Fentem	1013.0
Medium Density Residential	78.5	NE corner of Jensen & Fentem	3533.0
	97.0	NW corner of Jensen & Fentem	4365.0
	45.0	W of Jensen, N of canal	2025.0
	47.0	W of Hwy. 33, N PSUDP boundary	2115.0
Mobilehome/Condo	25.0	N of North at Laurel	900.0
High Density Residential	14.0	NW of Fifth Ave. & East Ave.	961.0
	24.0	NE corner of Carnation & East Ave.	1647.0
Light Industrial	78.0	SE of Sullivan Road extension & SPRR	7421.0
Heavy Industrial	76.0	E of Hwy. 33 N boundary of PSUDP	1484.0
Central Business District	2.4	Hwy. 33 between First & Second Aves.	10580.0
Neighborhood Commercial	10.0	SE corner Hwy. 140 & East Ave.	7301.0
	3.0	near Hwy. 33 N of North Ave.	3487.0
Commercial General Services	37.0	NW corner Hwy. 140 & Kniebes Rd.	27722.0
	52.0	E of Hunt Rd @ N PSUPD boundary	38960.0
Commercial Transition	6.0	Second Ave. between First & Third Sts.	4255.0
Ag-Commercial	26.0	W of Kniebes @ N PSUDP boundary	304.0
	42.0	NW of Kniebes & Sullivan extension	491.0
	60.0	SW of Hwy 33 and Sullivan Rd.	702.0
	181.0	NE of Prince Rd & Sullivan	2118.0
	203.0	NW corner of Jensen & Fentem	2374.0
	20.0	SE of Sullivan & Hwy. 33	234.0
Public: Schools K-8th	15.0	NE corner of Jensen & Fentem	612.0
Highschool	0.0	Existing	98.0
Parks	4.0	NE corner of Jensen & Fentem	24.0
	4.0	SE corner Hunt Rd. and Hwy. 140	24.0
Recreation - Golf	157.0	SE of Sullivan & CCID canal	1083.0
SUBTOTAL	1229.9		125604.0
GRAND TOTAL	1931.8		205752.0

# GUSTINE 1990 AADT TRAFFIC VOLUMES



## LEGEND

- COLLECTOR STREETS
- ARTERIAL/HIGHWAYS
- CITY LIMITS
- - - SPECIFIC URBAN DEVELOPMENT PLAN BOUNDARY

SOURCE: MCAG TRAFFIC MODEL





GUSTINE 2000  
AADT TRAFFIC  
VOLUME  
PROJECTIONS

## LEGEND

- COLLECTOR STREETS
- ARTERIAL/HIGHWAYS
- CITY LIMITS
- - - SPECIFIC URBAN  
DEVELOPMENT  
PLAN BOUNDARY

SOURCE: MCG TRAFFIC MODEL

# EUSTINE 2010 AADT TRAFFIC VOLUME PROJECTIONS



## LEGEND

- COLLECTOR STREETS
- ARTERIAL/HIGHWAYS
- CITY LIMITS
- - - SPECIFIC URBAN DEVELOPMENT PLAN BOUNDARY

SOURCE : MCG TRAFFIC MODEL

Summary of Gustine Housing Element Policies and Implementation				
20-May-92				
Goals & Objectives	Policies & Implementation	Date	Responsibility	Funding
Goal 1: Maintain Housing				
A. Rehabilitate 15 units per year.	1) Participate in Housing Rehabilitation loan programs.	Annually	CM, PD/PC	
	2) Apply for State and Federal Funds.	Annually	CM, PD/PC	LOCAL
	3) Provide housing rehab./ Emergency home repair for low income residents through CDBG and/or FmHA 504 funds.	On-going	PD/PC, NONPROFIT	
	4) Provide education and technical assistance for home maintenance, repair, and landscaping to all households.	On-going	PD, PW, NONPROFIT	LOCAL
	5) Continue enforcement of building codes and standards through out the life of the housing unit before neglect and cumulative maintenance costs place rehabilitation above affordability.	On-going	PD, PW,	LOCAL
	6) Continue enforcement of weed and other nuisance abatement programs.	On-going	CM, FD	LOCAL
	7) Continue upgrading residential streets to full City standards through various funding sources.	On-going	PD, PW	NEW DEV., LTF,
	8) Discourage non-compatible zoning and land use which may affect residential neighborhood vitality.	On-going	PD/PC	LOCAL
	9) Enact an ordinance to prevent the premature demolition of older rehabilitatable homes.	JUNE 92	CC	N/A
	10) Remove and promote replacement of dilapidated housing units which are beyond the possibility of repair.	On-going	PD/PW	LOCAL
	11) Promote local participation in PG&E's energy partners program.	On-going	PD/PW	PRIVATE





Goals & Objectives	Policies & Implementation	Date	Responsibility	Funding
B. Increase Assisted Housing Stock by 442 very low and low income housing units through 1997.	1) Promote Federal and state government housing bond and loan programs (see below).	On-going	CM/PD	
	Ownership: FmHA 502 loans, Section 203(b) Mortgage Insurance Homes, CHFA Programs: HPA, MDP, or Self-Help, California Self-Help, program, California Homeownership Assistance Program.		PD/PC NONPROFIT	
	Rentals: FmHA 515 loan, HUD Section 106(b) or Section 202 (handicapped and elderly), Section 8 - low income assistance or new construction loans, CHFA Programs: Multi-Family and Rental Housing Mortgage loan, State/ Local Pilot Rental Housing Finance Program, and RHCP.		PD/PC HOUS. AUTH.	
	Farm labor Housing: FmHA Sections 514/516.		HOUS. AUTH.	
	2) Make information on housing, housing programs, and housing assistance for both ownership and rentals, available to all members of the community.	On-going	CM/PD	
	3) Seek housing assistance and encourage programs for the elderly, large families, single mothers and the homeless.		PD/PC	
	4) Support the development of an affordable senior citizen complex by providing a variance for smaller lot sizes for individual mobile or manufactured home sites.		PD/PC	
	5) Encourage programs which allow local moderate income families to purchase homes through Federal Tax Credits with Mortgage Credit Certificates, and traditional financing with FHA, VA and CAL-VET.		CM/PD	
	6) Use zoning and land use controls flexibility to accommodate low income housing.	On-going	PD/PC	N/A

Goals & Objectives	Policies & Implementation	Date	Responsibility	Funding
C. Provide a free choice of Housing for all.	7) Support the establishment of an Emergency Shelter/Halfway House by applying for Homeless Shelter funds: State Bond program-Housing and Homeless Bond Acts of 1988 and 1990.	DEC 93	PD/PC	STATE
	1) Provide a mixture of residential land uses, including high, medium and low densities and Planned Unit Developments.	JUNE 92	CM/CC PD/PC	
	2) Provide an assortment of housing types at various price ranges.	On-going	CM/CC PD/PC	
	3) Provide Above Moderate housing according to the need identified in a variety of forms including custom homes on Residential Estates, Single Family homes, Condominiums and Apartments.	JUNE 92	CM/CC PD/PC	
	4) To promote affirmative marketing, open housing, and other practices which will have a positive impact on minorities and women.	On-going	CM/CC PD/PC	
	5) Display brochures and pamphlets from the Fair Employment Practices Commission.	On-going	CM/PD	
	6) Discourage income segregation by promoting mixed income housing development.	Annually	CM/CC PD/PC	
	7) Develop an active partnership with non-profit housing agency to: * provide information on fair housing laws. * refer complaints of housing discrimination to appropriate State or Federal agency; and * solicit State and Federal Funds for housing rehabilitation/development and housing program management.	DEC 92	CM/PD	LOCAL



Goals & Objectives	Policies & Implementation	Date	Responsibility	Funding
	8) Preserve residences with three or more bedrooms for larger families by discouraging the commercial conversion of these homes within the R-4 zone.			
D. To provide a jobs/housing balance along with appropriate community facilities and services.	1) Encourage business and industries which create the most jobs and best wages relative to its demand for services to locate in Gustine.	On-going	CM/CC PD/PC	LOCAL
	2) Maintain adequate housing stock to accommodate increased work force.	On-going	PD/PW	LOCAL, PRIVATE
	3) Promote adequate and accessible park and community services for various residential areas through use of park dedication fees or dedications by developers.	On-going	CM/CC PD/PW	LOCAL NEW DEV
	4) Analyze all development projects for impact on infrastructure and public works.	ANNUALLY	PD/PW	LOCAL
	5) Insure that developers provide or commit to payment of their fair share of infrastructure development for their projects.	On-going	CM/CC PD/PC	NEW DEV
Goal II: Promote efficient use of land available.				
A. Provide 174 housing units per year to meet the market demand.	1) Cooperatively work with Housing Authority and Self-Help to meet the need for low and very low income housing.			
B. Enact a density bonus ordinance to comply with state requirements and facilitate developer's use of the density bonus.	1) Provide density bonuses to developers who include 10% affordable units for low income households.	On-going	CM/CC PD/PC	LOCAL
	2) Negotiate development agreements with developers to provide public facilities in exchange for certain development rights such as land use changes and density increases.		PD/PW/ City Counsel	LOCAL

Goals & Objectives	Policies & Implementation	Date	Responsibility	Funding
C. Annexation will occur only after appropriate areas within the City limits have been built out.	3) Hold pre-application conferences and prepare explanatory materials on the application and review process to streamline permit processing.		PD/PW	LOCAL
	4) Encourage use of the "Planned Unit Development" concept, including mobile home parks.	On-going	PD/PC	N/A
	1) Encourage infill housing in residential districts where services are available.	On-going	PD/PW	PRIVATE
	2) Annex those areas easily serviced and within the Specific Urban Development Plan Boundary (SUDP)/Sphere of Influence (SOI) for both single family and multi-family.	Annually	CM/CC PD/PC	LOCAL
	3) Require developer to bear cost for public service improvements with annexation, and help fund off-site improvements using assessment districts.	Annually	CM/CC PD/PC	NEW DEV
	4) Maintain integrity of residential districts through discouraging or mitigating incompatible uses in or adjacent to residential districts.	On-going	PD/PC	LOCAL
	5) Annex where there are the least constraints and where public facilities are accessible and have the capacity to accept growth.	On-going	PD/PC/PW	LOCAL

APPENDIX C-1  
ACOUSTICAL TERMINOLOGY

- AMBIENT NOISE LEVEL:** The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.
- A-WEIGHTED SOUND LEVEL:** The sound pressure level in decibels as measured on a sound level meter using A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.
- CNEL:** Community Noise Equivalent Level. The average equivalent A-weighted sound level during a 24 hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.
- DECIBEL, dB:** A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).
- EQUIVALENT ENERGY LEVEL:** The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. Leg is typically computed over 1, 8, and 24-hour sample periods.
- Ldn:** Day/Night Average Level. The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

**Note:** CNEL and Ldn represent daily levels of noise exposure averaged on an annual basis, while Leg represents the equivalent energy noise exposure for a shorter time period, typically 1 hour.



## ACOUSTICAL TERMINOLOGY

<b>Lmax:</b>	The maximum A-weighted noise level recorded during a noise event.
<b>Ln:</b>	The sound level exceeded "n" percent of the time during a sample interval. L10 equals the level exceeded 10 percent of the (L90, L50, etc.).
<b>NOISE EXPOSURE CONTOURS:</b>	Lines drawn about a noise source indicating constant energy levels of noise exposure. CNEL and Ldn are the descriptors normally used to describe community exposure to noise.
<b>SOUND EXPOSURE LEVEL: (SEL)</b>	The level of noise accumulated during a or; single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the level of time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micronewtons per square meter and reference duration of 1 second.
<b>SINGLE EVENT NOISE EXPOSURE LEVEL (SENEL)</b>	
<b>SPL:</b>	The varying sound level as measured at any instant in time.

Examples of Noise Levels

<u>Level, dBA</u>	<u>Activity</u>	<u>Subjective Evaluations</u>
140	Sonic booms	Deafening
130	Threshold of pain	
120	Threshold of discomfort	
110	Amplified music	
110	Commercial jet takeoff at 200 feet	Very loud
100	Auto horn at 10 feet	
90	Noisy factory interior	
90	Heavy truck at 50 feet	Loud
80	New automobile at 50 feet	
70	Stenographic room	
60	Normal conversation at 6 feet	Moderate
50	Office interior	
40	Soft radio music	
30	Residence interior	Faint
20	Whisper at 6 feet	
10	Human breathing	Very faint
0	Threshold of audibility	

BBA

# Traffic and Noise Level Data for State Highways in Merced County

Roadway Description	AADT		D/N Split	%HT	%HT	Speed (MPH)	Distance (Feet)* to Ldn contours			
	1988	2000					1988		2000	
							65 dB	60 dB	65 dB	60 dB
*****										
State Highways										
I-5										
Fresno CL to SR 33	19,500	32,000	84/16	2	28	65	431	929	600	1292
SR 33 to Stanislaus CL	17,700	31,000	84/16	4	21	65	362	780	526	1134
SR 99										
Madera CL to SR 140	31,000	48,500	75/25	4	21	55	544	1172	728	1569
SR 140 to Livingston	35,000	58,000	75/25	3	17	55	533	1149	747	1609
Livingston to Stanislaus CL	29,000	47,700	75/25	4	23	55	543	1169	756	1629
SR 33										
Fresno CL to SR 152	4,700	7,800	85/15	4	10	50	84	180	117	253
SR 152 to SR 140	3,400	5,300	85/15	3	15	50	78	169	105	227
SR 140 to Stanislaus CL	5,800	9,100	85/15	5	8	50	90	195	122	263
SR 59										
Madera CL to Sandy Mush	3,500	7,400	87/13	5	7	55	66	142	109	234
Sandy Mush to Merced	6,800	14,300	87/13	5	7	55	103	221	168	363
Merced to Oakdale Rd.	5,100	10,700	87/13	5	7	55	85	182	139	299
SR 140										
I-5 to Gustine CL	3,700	12,800								
SR 33 to SR 165	2,400	4,300	93/7	3	9	55	81	174	119	256
SR 165 to SR 59	1,900	3,600	93/7	3	9	55	38	82	58	125
SR 59 to Planada	6,300	9,900	93/7	3	9	55	85	182	114	246
Planada to Mariposa CL	2,800	4,100	93/7	3	9	55	49	106	63	137
SR 152 (NORTH)										
Santa Clara CL to SR 33	14,500	34,900	87/13	4	26	55	257	554	462	996
SR 33 (N) to SR 33 (S)	12,700	26,033	87/13			55				
SR 33 (S) to Madera CL	11,500	23,000	87/13	3	16	55	189	407	300	647
SR 165										
I-5 to SR 140	3,450	5,250	93/7	2	10	50	55	117	75	162
SR 140 to Williams	4,700	7,800	93/7			50				
Williams to Stanislaus CL	11,500	21,700	93/7			45-50				



## INTRODUCTION

Brown-Buntin Associates (BBA) has prepared the following community noise assessment as part of a Noise Element for the City of Gustine General Plan. The purpose of the Noise Element is to protect local citizens from the harmful effects of excessive exposure to noise as summarized in the following general goals and objectives.

1. Provide sufficient noise exposure information in the General Plan so that existing and potential noise impacts may be effectively addressed in the land use planning and project review processes.
2. Develop and implement effective strategies to abate and avoid excessive noise exposures in the community by requiring that effective noise mitigation measures be incorporated into the design of new noise generating and new noise sensitive land uses.
3. Protect areas within the City of Gustine sphere of influence where the present noise environment is deemed acceptable.

## BACKGROUND

The contents of a Noise Element and the methods used in its preparation have been determined by the requirements of Section 65302 (g) of the California Government Code and by Guidelines for the Preparation and Content of Noise Elements of the General Plan adopted and published by the California Office of Noise Control (ONC) in 1976. As adopted, the ONC Guidelines require that certain major noise sources and areas containing noise sensitive land uses be identified and quantified by preparing generalized noise exposure contours for current and projected conditions within the community. Contours may be prepared in terms of either the Community Noise Equivalent Level (CNEL) or the Day-Night

Average Level ( $L_{dn}$ )\* which are both descriptors of total noise exposure at a given location for an annual average day. It is intended that the noise exposure information developed for the Noise Element be incorporated into the General Plan to serve as a basis for achieving land use compatibility within the community. It is also intended that noise exposure information be used to provide baseline levels and noise source identification for use in the development and enforcement of a local noise control ordinance.

According to the Noise Element Requirements and ONC Guidelines, the following major noise sources should be considered in the preparation of a Noise Element:

1. Highways and freeways
2. Primary arterials and major local streets
3. Railroad operations
4. Aircraft and airport operations
5. Local industrial facilities
6. Other stationary sources

Noise sensitive areas to be considered in the Noise Element should include areas containing the following noise sensitive land uses:

1. Schools
2. Hospitals
3. Rest homes

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\* For an explanation of the terminology used in this report refer to Appendix A: "Acoustical Terminology."



4. Long-term medical or mental care facilities
5. Other uses deemed noise sensitive by the local jurisdiction

#### EXISTING AND FUTURE NOISE ENVIRONMENT

##### Major Noise Sources

Based on discussions with Valley Planning Consultants project staff regarding potential major noise sources, and the results of field studies by BBA, it was determined that there are three major sources of community noise within the City of Gustine sphere of influence. These sources are State Highways, railroad operations and local industrial activities. The City of Gustine Airport is located east of town and away from existing or expected future noise-sensitive land uses. Specific noise sources selected for study are listed below:

1. State Highways;
  - . State Highway 33
  - . State Highway 140
2. Railroad operations;
  - . Southern Pacific Transportation Company
3. Industrial facilities;
  - . Beatrice Cheese (Beatrice Foods Company)
  - . Souza's Milk Transportation Company
  - . Bettencourt Trucking
  - . Carnation
  - . Tipco Warehouse, Inc.
  - . Avoset Food Corporation
  - . Ted Peters Trucking, Inc.

A combination of noise monitoring and analytical noise modeling techniques was used to develop generalized  $L_{dn}$  noise contours around the major noise sources identified above for existing (1984) and future (2000) conditions.

Analytical noise modeling techniques generally make use of source-specific data including average levels of activity, hours of operation, seasonal fluctuations, and average levels of noise from source operations. Analytical methods have been developed for a number of environmental noise sources including roadways, railroad line operations, railroad yard operations, industrial plants and aircraft/airport operations. Such methods will produce reliable results as long as data inputs and assumptions are valid for the sources being studied. The analytical methods used in this report closely follow recommendations made by ONC, and were supplemented where appropriate by field-measured noise level data to account for local conditions within the Gustine area. It should be noted that the noise exposure contours presented in this report are based upon annual average conditions, and are not intended to be site-specific where local topography, vegetation or intervening structures may significantly affect noise exposure at a particular location.

##### State Highways

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop  $L_{dn}$  contours for State Highways within the Gustine sphere of influence. The FHWA Model is the analytical method presently favored by most state and local agencies, including Caltrans, for traffic noise prediction. The FHWA Model is based upon reference energy emission levels for automobiles, medium trucks and heavy trucks, with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly  $L_{eq}$  values for free-flowing traffic conditions, and is generally considered to be accurate within plus or minus 1.5



dB. To predict  $L_{dn}$  values it is necessary to determine the hourly distribution of traffic for a typical 24-hour day and adjust the traffic volume input data to yield an equivalent hourly traffic volume.

Traffic data for existing and future conditions were obtained from Caltrans as summarized in Table I. The day/night distribution of traffic reported in Table I is based upon traffic counts performed by Caltrans in the Gustine area in November 1984. Future projections of annual daily traffic volumes are based upon a yearly growth factor of 2.7% which is the five-year average for 1978-1983. Using data from Table I and the FHWA methodology, traffic noise levels as defined by  $L_{dn}$  were calculated for existing (1984) and projected future (2000) traffic volumes. Distances from the center of the roadway to  $L_{dn}$  contour values of 70, 65 and 60 dB are summarized in Table II. It should be noted that since calculations did not take into consideration shielding caused by local buildings or topographical features, the distances reported in Table II should be considered as worst-case estimates of noise exposure along roadways in the community.

#### Railroad Operations

Railroad operations within the City of Gustine are composed of through-freight and local switching operations on the Southern Pacific Transportation Company line which runs through the eastern part of town. According to the Chief Dispatcher's office in Tracy, the average number of railroad operations through Gustine for a typical week is one southbound train three times per week, and one northbound train three times per week. All trains run during the daytime (7:00 a.m. - 10:00 p.m.) hours. Trains are usually composed of one or two locomotives with approximately 20

cars. Average speed is 25-30 miles-per-hour. Railroad operations are not expected to change significantly within the foreseeable future.

Noise measurements were conducted in Gustine on January 28, 1985 to obtain noise level data for typical railroad operations in the community. Noise levels were measured at a distance of 120 feet from the center of the tracks near the Third Avenue grade crossing. During the measurements, a southbound train dropped its cars north of town to complete switching movements at local industrial sites throughout town. Later, the locomotives returned to pick up the rest of the train and to proceed southbound through town. The maximum noise level measured for the train's horn was 97 dBA. Maximum noise levels for the locomotives and cars ranged from 70-82 dB. A time history for a passby by the locomotives during switching movements is shown in Figure 1. In terms of  $L_{dn}$ , noise levels from railroad operations in the community are insignificant (less than 50 dB at 100 feet) due to their low speed and infrequent occurrence. Noise levels from individual train movements would be expected to result in only short-term impacts on residents located near the tracks.

#### Industrial Facilities

Noise exposure information for local industrial facilities was developed from operational data obtained from plant operators, and from noise level data obtained at reference locations around the plants. Consistent with the  $L_{dn}$  methodology, a 10 dB penalty was added to noise levels occurring at night (10:00 p.m. - 7:00 a.m.) where applicable. In discussing future operations with plant operators it was readily apparent that too many variables exist to allow meaningful projections of future activity or noise levels. It is recommended that detailed studies of current source operations and noise levels be conducted whenever potentially noise sensitive land uses are proposed for areas near existing industrial or commercial facilities.

Figure 1

A-weighted Noise Level vs. Time

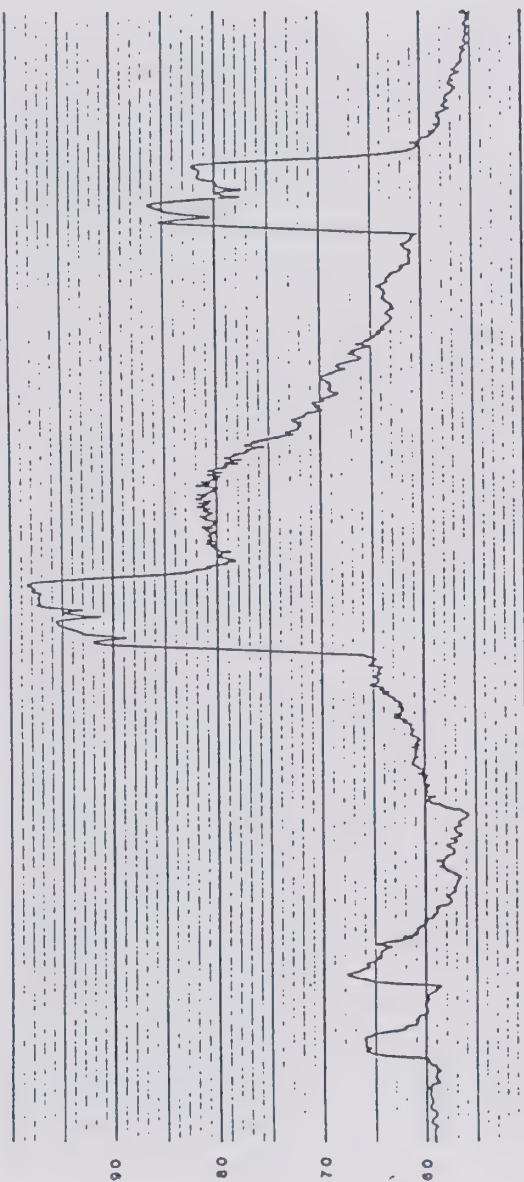
S.P.R.R. • Gustine, California

Date: 1/28/85

Chart Speed: 0.3 cm/sec.

Level, dBA

Brüel & Kjær



BBA

A. Beatrice Cheese (Beatrice Foods Company)

The Beatrice Cheese plant in Gustine produces cheese and whey powder as a by-product of the cheese processing operation. Major noise sources at the plant are the dryer, cooling towers, fans, boilers, compressors and truck loading and unloading activities. Noise measurements were conducted at six locations around the plant at approximately 1:00 p.m. and 11:30 p.m. on Monday, January 28, 1985. Based upon these measurements and reported operating hours, the generalized  $L_{dn}$  60 dB contour for the facility with both the cheese plant and whey powder production equipment in operation is located approximately 825 feet from the center of the plant. This is representative of a worst-case condition. It is unknown what future changes may occur in plant operations or equipment which could alter noise levels generated by the plant.

Source: Mr. John Krein, Assistant Plant Manager

B. Souza's Milk Transportation Company

Souza's Milk Transportation Company is a truck loading and maintenance facility which operates 24-hours per day and seven days per week. Maintenance activities are generally conducted between the hours of 8:00 a.m. and 5:00 p.m. Truck departures normally begin at approximately 4:00 a.m. According to company management, there may be up to 10 trucks parked in the terminal area at any one time. Major noise sources associated with this operation include arriving and departing trucks and the operation of truck-mounted refrigeration equipment at all hours of the day and night. During measurements conducted at approximately 11:00 p.m. on January 28, 1985 it was noted that three trucks were parked in the terminal area. Two of these appeared to have refrigeration units in operation. Based upon noise measurements obtained at this time, and the assumption that the operation observed on January 28, 1985

is typical of annual average conditions at the facility, the generalized  $L_{dn}$  60 dB contour would be located at approximately 550 feet from the center of the facility. Since noise levels associated with this operation are generated relatively close to the ground, noise levels would be significantly attenuated by surrounding buildings. This would be especially true west of the facility.

Source: Mr. Charles Souza, Co-Owner

C. Bettencourt Trucking

This is a truck parking and maintenance facility which operates between the hours of 8:00 a.m. and 6:00 p.m. Truck departures and arrivals generally occur between the hours of 5:30 a.m. and 8:00 p.m. Noise generating equipment located at the facility would include compressors and power tools. Noise generating activities typically do not occur at night. There are no major stationary noise sources associated with the operation of this facility.

Source: Mr. Gary O'Rear, Mechanic

D. Carnation

The Carnation plant in Gustine processes and packages evaporated milk. Hours of operation for the evaporation process are 2:00 a.m. to 12:00 noon. Packaging occurs between the hours of 6:00 a.m. and 6:00 p.m. The plant normally operates Monday through Saturday with Wednesday off for cleaning and maintenance. Major noise generating equipment associated with plant operations include the evaporator, compressors, boilers and conveyors. Occasionally steam is released by a pressure relief valve on the boiler system. Noise measurements conducted on January 28, 1985 indicated that the major source of noise on the outside of the plant building was the truck unloading and cleaning operation. Based upon these

measurements and reported operating hours, the generalized  $L_{dn}$  60 dB contour is located approximately 150 feet from the truck unloading area. This should not be considered a significant source of noise in the community.

Source: Mr. Bruce Foreman, Plant Manager

E. Tipco Warehouse, Inc.

This is a milk storage warehouse. Noise levels are generated by the movement of trucks between the warehouse and local food processing plants, and by forklifts used to unload trucks. Normal hours of operation are 6:30 a.m. to 9:00 p.m. Noise measurements conducted on January 28, 1985 indicated that this is not a significant source of noise within the community.

Source: Mr. Ted Peters

F. Avoset Food Corporation

This is a food processing plant which packages whipping cream, fruit juices, salad dressings and other food products. The plant operates 24 hours per day and five to seven days out of the week depending upon product demand. Peak seasons are November through December and March through April. Major sources of noise noted during the January 28, 1985 measurements included a fan on the east side of the building and truck loading and unloading activities on the west side of the building. Also noted were noise levels generated by air curtains when the doors to the plant were open for loading or unloading activities. According to the plant management, three to five trucks may be in the loading dock area at any one time. Of these, approximately two to three trucks may have their refrigeration units in operation. Normal hours of loading are 7:00 a.m. to 7:00 p.m. Based upon noise level measurements obtained on January 28, 1985, and the above described level of operations, the generalized  $L_{dn}$  60 dB contour is located at approximately 300 feet from



TABLE IV

SUMMARY OF MEASURED NOISE LEVELS AND ESTIMATED  
DAY-NIGHT AVERAGE LEVELS ( $L_{dn}$ ) IN AREAS  
CONTAINING NOISE SENSITIVE LAND USES

Site #	Description	$L_D$	$L_N$	$L_{dn}$
1	Gustine Union High School	53 dBA	44 dBA	53 dB
2	Gustine City Park	51 dBA	43 dBA	52 dB
3	Fourth Ave. @ Second St.	54 dBA	53 dBA	60 dB
4	Holy Ghost Catholic Church	50 dBA	39 dBA	50 dB
5	Gustine Elementary School	48 dBA	42 dBA	50 dB

$L_D$ :  $L_{eq}$  during daytime (7:00 a.m.-10:00 p.m.) hours.

$L_N$ :  $L_{eq}$  during nighttime (10:00 p.m.-7:00 a.m.) hours.

Source: Brown-Buntin Associates

#### COMMUNITY NOISE EXPOSURE INVENTORY

A community noise exposure inventory was prepared based upon the number of homes located within noise impacted areas and the average number of persons per dwelling unit for the Gustine area. Since most noise generating activities occur near the downtown area and community growth and development trends are directed to the south and west of this area, significant changes in the number of persons exposed to noise levels exceeding  $L_{dn}$  65 or 60 dB are not expected in the future. Table IV summarizes the results of the noise exposure inventory.

TABLE V

APPROXIMATE NUMBER OF PERSONS  
RESIDING IN NOISE IMPACTED AREAS

	1984	2000
$L_{dn}$ equals or exceeds 60 dB	505	700

Source: Valley Planning Consultants  
Brown-Buntin Associates

#### DISCUSSION AND RECOMMENDATIONS

The foregoing sections of the report have provided an assessment of existing (1984) and projected (2000) community noise levels within the City of Gustine sphere of influence.

Noise contours shown in Figure 2 are intended to illustrate the general location and extent of noise levels exceeding  $L_{dn}$  60 dB for existing and projected future conditions within the community. Such contours are worst-case estimates of noise exposure in the community since they do not take into consideration local shielding from intervening buildings, vegetation or topography. It is intended that these contours be used by the City of Gustine as a guide in the planning of future land uses and zoning, and as a screening tool for evaluating development proposals involving noise sensitive land uses.

Figure 4 is provided as a guide concerning the sensitivity of different land uses to their noise environment. It is intended to illustrate the range of noise levels which will allow the full range of activities normally associated with a given land use. For example, exterior noise levels in the range of  $L_{dn}$  50-60 dB are generally considered acceptable for residential land uses, since these levels will usually allow normal outdoor and indoor

the loading dock area and approximately 200 feet from the raw materials unloading area. Due to the location of the plant building on the north and east sides of the truck loading and unloading areas, noise levels would be significantly attenuated in these directions.

Source: Mr. Steve Colburn, Plant Manager

C. Ted Peters Trucking, Inc.

Ted Peters Trucking, Inc. is a truck refueling facility with a public scale. Normal hours of operation are 6:30 a.m. to 7:00 p.m. Sources of noise would include the movement of trucks to and from the facility, and the operation of truck-mounted refrigeration units while trucks are parked at the facility. During the noise measurements conducted on January 28, 1985, one truck with a refrigeration unit in operation was observed parked at the facility overnight. According to company management, this is typical of normal operations at the facility. During normal business hours, there may be two to three trucks parked at the facility. Based upon noise level measurements obtained on January 28, 1985 and the above-described operational data, the generalized  $L_{dn}$  60 dB contour is located at approximately 400 feet from the center of the parking area.

Source: Mr. Lowell Peters, Co-Owner

Noise Sensitive Areas

The following noise sensitive land uses have been identified within the City of Gustine sphere of influence.

A. Residential Areas

- . All dwellings including single-family, multi-family, mobile homes, etc.

B. Schools

- . Holy Ghost Catholic School
- . Gustine Elementary School
- . Gustine Union High School

C. Parks and Recreational Areas

- . Gustine City Park
- . Harry P. Schmidt Park

As required by the Government Code and ONC Guidelines, a community noise survey was conducted to document noise exposure in areas of the community containing noise sensitive land uses. Noise monitoring sites were selected to be representative of typical conditions in areas of the community where such uses are located. Noise monitoring was conducted on January 28, 1985, during the day, evening and night so that reasonable estimates of  $L_{dn}$  could be prepared. Noise monitoring equipment consisted of a Digital Acoustics DA607p Environmental Noise Analyzer equipped with a Genrad Type 1962-9602 1/2" microphone. The measurement system was calibrated in the field prior to use with an acoustical calibrator, and complies with all applicable requirements of the American National Standards Institute (ANSI) for Type I (Precision) sound level meters. Noise monitoring sites are shown on a map of the study area in Figure 2. Measured noise levels and estimated  $L_{dn}$  values are summarized in Table III. Figure 3 shows the statistical distribution of noise levels and time histories for samples obtained during the day at the five community noise survey monitoring sites.

activities such as sleep and communication to occur without interruption. Industrial facilities, however, are relatively insensitive to noise and may be located in a noise environment of up to  $L_{dn}$  75 dB without significant adverse effects.

In order to effectively address and mitigate existing or potential noise impacts in the City of Gustine, and to promote land use compatibility, the following specific policies are recommended for incorporation into the adopted Noise Element.

1. Areas within the City of Gustine exposed to existing or projected future exterior noise levels exceeding  $L_{dn}$  60 dB should be designated as noise-impacted areas (Figure 2).

2. New development of residential or other noise sensitive land uses should not be permitted in noise-impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor activity areas to  $L_{dn}$  60 dB or less and interior noise levels to  $L_{dn}$  45 dB or less. In areas where it is not possible to reduce exterior noise levels to  $L_{dn}$  60 dB or less using a practical application of the best available noise-reduction technology, an exterior noise level of up to  $L_{dn}$  65 dB will be allowed. Under no circumstances should interior noise levels exceeding  $L_{dn}$  45 dB with the windows and doors closed be permitted.

3. Where the development of residential or other noise-sensitive land uses is proposed for a noise-impacted area, an Acoustical Analysis should be required. The Acoustical Analysis should:

A. Be the responsibility of the applicant.

B. Be prepared by a qualified acoustical consultant (a list of qualified acoustical consultants is available from the California Office of Noise Control).

C. Include representative noise level measurements with sufficient sampling periods and locations to adequately describe local conditions.

D. Include estimated noise levels in terms of exterior  $L_{dn}$  for existing and projected future (10-20 years hence) conditions, with a comparison made to the adopted policies of the Noise Element.

E. Include recommendations for appropriate mitigation to achieve compliance with the adopted policies of the Noise Element. Where the noise source in question consists of intermittent single events, the report should address the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

F. Include estimates of noise exposure after the prescribed mitigation measures have been implemented. If compliance with the Noise Element will not be achieved, a rationale for acceptance of the project should be provided.

4. The City of Gustine should enforce the State Noise Insulation Standards (California Administrative Code, Title 25) and Chapter 35 of the Uniform Building Code concerning the construction of new multi-family dwellings such as hotels, apartments, and condominiums.

5. Noise level criteria applied to land uses other than residential or other noise-sensitive uses should be consistent with recommendations of the California Office of Noise Control (Figure 4).

6. New equipment and vehicles purchased by the City of Gustine should comply with noise level performance standards consistent with the best available noise reduction technology.



7. Noise exposure information developed during the community noise survey described in the Noise Element should be used as a guideline for the development of an effective noise control ordinance to assist the City of Gustine in controlling future increases in community noise levels, in addressing noise complaints, and to provide local industry with noise level criteria for future development and equipment modifications.
8. The City of Gustine Police Department should actively enforce existing sections of the California Vehicle Code relating to mufflers and modified exhaust systems.
9. The findings and specific policies of the Noise Element should be incorporated into the City of Gustine zoning plan and coordinated with the Land Use and Circulation Elements of the General Plan.
10. The City of Gustine should periodically review and update the Noise Element to ensure that noise exposure information and specific policies are consistent with changing conditions within the community.

PHYSICAL AND CHEMICAL PROPERTIES OF THE SOIL										
SOIL NAME & MAP #	DEPTH	CLAY	PERMEABILITY	AVAIL. WATER	SOIL REACTION	SALINITY	SHRINK-SWELL	EROSION	FACTOR	ORGANIC
				CAPACITY			POTENTIAL	K	T	MATTER
	(In)	(Pct)	(In/hr)	(In/in)	(pH)	(mmhos/cm)				(Pct)
142 BRITTO	0-5	27-35	0.06-0.2	0.14-0.18	6.6-8.4	2-4	moderate	0.43	5	<1
	5-22	35-55	<0.06	0.05-0.14	7.9-9.0	>2	high	0.37		
	22-62	30-50	<0.06	0.05-0.10	7.9-9.0	>8	high	0.37		
167 DELDOTA	0-17	40-50	0.06-0.2	0.15-0.16	7.4-8.4	<2	high	0.28	5	1-3
	17-24	35-50	0.06-0.2	0.15-0.17	7.4-8.4	<2	high	0.28		
	24-68	30-40	0.06-0.2	0.16-0.18	7.4-8.4	<2	moderate	0.24		
168 DOSAMIGOS	0-5	35-40	0.06-0.2	0.17-0.20	7.9-8.4	<2	moderate	0.28	5	1-2
	5-29	37-50	<0.06	0.12-0.17	7.9-8.4	<8	high	0.28		
	29-62	30-45	0.06-0.2	0.09-0.16	7.9-8.4	2-16	moderate	0.32		
169 DOSAMIGOS	0-15	40-45	0.06-0.2	0.14-0.16	7.9-8.4	<2	high	0.24	5	1-2
	15-27	37-50	<0.06	0.12-0.17	7.9-8.4	<8	high	0.28		
	27-60	30-45	0.06-0.2	0.09-0.16	7.9-8.4	2-16	moderate	0.32		
234 PEDCAT	0-5	18-27	0.6-2.0	0.09-0.14	6.1-7.3	8-16	low	0.43	5	<1
	5-23	40-50	<0.06	0.09-0.13	7.9-8.4	>8	high	0.32		
	23-29	30-45	0.06-0.2	0.09-0.12	7.9-8.0	>8	high	0.32		
	29-60	30-45	0.06-0.2	0.09-0.12	7.9-8.0	>8	high	0.32		
236 PEDCAT	0-5	27-38	0.2-0.6	0.10-0.16	6.6-7.8	8-16	moderate	0.37	5	<1
	5-23	40-50	<0.06	0.09-0.13	7.9-8.4	>8	high	0.32		
	23-29	30-45	0.06-0.2	0.09-0.12	7.9-8.0	>8	high	0.32		
	29-60	30-45	0.06-0.2	0.09-0.12	7.9-8.0	>8	high	0.32		
247 SAN EMIGDIO	0-14	10-18	2.0-6.0	0.15-0.17	7.9-8.4	<2	low	0.32	5	.5-1
	14-60	10-18	2.0-6.0	0.10-0.17	7.9-8.4	<2	low	0.32		
248 SANTANELA	0-6	10-20	0.6-2.0	0.13-0.16	6.6-8.4	<2	low	0.43	5	1-3
	6-19	20-35	0.06-0.2	0.06-0.08	7.9-9.0	4-8	moderate	0.37		
	19-61	15-30	0.06-0.2	0.11-0.15	7.9-9.0	2-8	moderate	0.32		

# PHYSICAL AND CHEMICAL PROPERTIES OF THE SOIL (CONTINUED)

SOIL NAME & MAP #	DEPTH	CLAY	PERMEABILITY	AVAIL. WATER	SOIL REACTION	SALINITY	SHRINK-SWELL	EROSION	FACTOR	ORGANIC
	(In)	(Pct)	(In/hr)	CAPACITY (In/In)	(pH)	(mmhos/cm)	POTENTIAL	K	T	MATTER (Pct)
253 STANISLAUS	0-19	35-40	0.06-0.2	0.17-0.20	7.4-8.4	<2	high	0.28	5	1-2
	19-39	38-45	0.06-0.2	0.15-0.16	7.4-8.4	<2	high	0.24		
	39-65	25-40	0.2-0.6	0.15-0.20	7.4-8.4	<2	moderate	0.37		
254 STANISLAUS	0-16	35-40	0.06-0.2	0.17-0.20	7.4-8.4	<2	high	0.28	5	1-2
	16-50	34-45	0.06-0.2	0.15-0.16	7.4-8.4	<2	high	0.24		
	50-60	25-40	0.06-0.2	0.15-0.20	7.4-8.4	<2	moderate	0.37		
255 STANISLAUS	0-19	35-40	0.06-0.2	0.17-0.20	7.4-8.4	<2	high	0.28	5	1-2
	19-39	38-45	0.06-0.2	0.15-0.16	7.4-8.4	<2	high	0.24		
	39-65	25-40	0.2-0.6	0.15-0.20	7.4-8.4	<2	moderate	0.37		
256 TRIANGLE	0-34	40-60	<0.06	0.12-0.16	7.9-9.0	<8	high	0.37	4	<1
	34-60	35-60	<0.06	0.06-0.10	7.9-9.0	8-16	high	0.37		
274 WOO	0-16	18-27	0.6-2.0	0.14-0.17	6.6-8.4	<2	low	0.37	5	1-2
	16-67	18-35	0.2-0.6	0.14-0.19	7.4-8.4	<2	moderate	0.32		
277 WOO	0-15	27-35	0.2-0.6	0.15-0.19	6.6-8.4	<2	moderate	0.32	5	1-2
	15-67	18-35	0.2-0.6	0.14-0.19	7.4-8.4	<2	moderate	0.32		
279 WOO	0-19	27-35	0.2-0.6	0.17-0.19	6.6-7.8	<2	moderate	0.32	5	1-2
	19-48	18-35	0.2-0.6	0.14-0.19	7.9-8.4	<2	moderate	0.32		
	48-62	35-45	0.06-0.2	0.14-0.17	7.9-8.4	<4	high	0.32		
282 WOO	0-16	18-27	0.6-2.0	0.14-0.17	6.6-8.4	<2	low	0.37	5	1-2
	16-67	18-35	0.2-0.6	0.14-0.19	7.4-8.4	<2	moderate	0.32		



SOIL POTENTIAL FOR WILDLIFE HABITAT										
SOIL NAME & MAP #	POTENTIAL FOR HABITAT ELEMENTS							POTENTIAL AS HABITAT FOR...		
	GRAIN & SEED CROPS	GRASSES & LEGUMES	PLANTS-WILD, HARDWOOD HERBACEOUS	TREES	SHRUBS	WETLAND PLANTS	SHALLOW WATER	OPEN LAND WILDLIFE	WETLAND WILDLIFE	RANGELAND WILDLIFE
142 BRITTO	FAIR	FAIR	FAIR	POOR	FAIR	GOOD	GOOD	FAIR	GOOD	---
167 DELDOTA	FAIR	GOOD	GOOD	VERY POOR	VERY POOR	FAIR	FAIR	FAIR	FAIR	---
168 DOSAMIGOS	GOOD	GOOD	GOOD	FAIR	FAIR	FAIR	FAIR	GOOD	FAIR	---
169 DOSAMIGOS	GOOD	GOOD	GOOD	POOR	POOR	FAIR	FAIR	GOOD	FAIR	---
234 PEDCAT	VERY POOR	VERY POOR	VERY POOR	VERY POOR	VERY POOR	FAIR	FAIR	VERY POOR	FAIR	VERY POOR
236 PEDCAT	FAIR	FAIR	POOR	VERY POOR	POOR	FAIR	FAIR	FAIR	FAIR	---
247 SAN EMIGDIO	GOOD	GOOD	GOOD	FAIR	GOOD	POOR	VERY POOR	GOOD	VERY POOR	---
248 SANTANELA	VERY POOR	POOR	POOR	VERY POOR	POOR	GOOD	FAIR	POOR	FAIR	POOR
253, 254 STANISLAUS	GOOD	GOOD	GOOD	POOR	FAIR	GOOD	FAIR	GOOD	FAIR	---
255 STANISLAUS	GOOD	GOOD	GOOD	POOR	FAIR	GOOD	FAIR	GOOD	FAIR	---
256 TRIANGLE	POOR	FAIR	POOR	VERY POOR	POOR	GOOD	FAIR	POOR	FAIR	POOR
274, 277, 282 WOO	GOOD	GOOD	GOOD	FAIR	FAIR	GOOD	POOR	GOOD	FAIR	---
275 WOO	GOOD	GOOD	GOOD	FAIR	FAIR	GOOD	VERY POOR	GOOD	POOR	---
279 WOO	GOOD	GOOD	GOOD	FAIR	FAIR	GOOD	FAIR	GOOD	FAIR	---



SOIL SUITABILITY FOR RECREATIONAL DEVELOPMENT					
SOIL NAME & MAP #	CAMP AREAS	PICNIC AREAS	PLAYGROUNDS	PATHS & TRAILS	GOLF FAIRWAYS
142 BRITTO	SEVERE: PERCS SLOWLY EXCESS SODIUM WETNESS	SEVERE: PERCS SLOWLY EXCESS SODIUM	SEVERE: PERCS SLOWLY EXCESS SODIUM WETNESS	SEVERE: ERODES EASILY	SEVERE: EXCESS SODIUM
167 DELDOTA	SEVERE: TOO CLAYEY	SEVERE: TOO CLAYEY	SEVERE: TOO CLAYEY	SEVERE: TOO CLAYEY	SEVERE: TOO CLAYEY
168 DOSAMIGOS	MODERATE: PERCS SLOWLY	MODERATE: PERCS SLOWLY	MODERATE: PERCS SLOWLY	SLIGHT:	SLIGHT:
169 DOSAMIGOS	MODERATE: PERCS SLOWLY	MODERATE: PERCS SLOWLY	SEVERE: TOO CLAYEY	MODERATE: TOO CLAYEY	SEVERE: TOO CLAYEY DROUGHTY
234, 236 PEDCAT	SEVERE: PERCS SLOWLY	SEVERE: EXCESS SALT EXCESS SODIUM	SEVERE: PERCS SLOWLY EXCESS SODIUM	SEVERE: ERODES EASILY	SEVERE: EXCESS SALT EXCESS SODIUM
247 SAN EMIGDIO	SLIGHT	MODERATE: DUSTY	MODERATE: DUSTY	MODERATE: DUSTY	SLIGHT
248 SANTANELA	SEVERE: PONDING EXCESS SODIUM	SEVERE: PONDING EXCESS SODIUM	SEVERE: PONDING EXCESS SODIUM	SEVERE: PONDING ERODES EASILY	SEVERE: PONDING EXCESS SODIUM
253 - 255 STANISLAUS	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT
256 TRIANGLE	SEVERE: PONDING EXCESS SODIUM PERCS SLOWLY	SEVERE: PONDING TOO CLAYEY EXCESS SODIUM	SEVERE: TOO CLAYEY PONDING EXCESS SODIUM	SEVERE: PONDING TOO CLAYEY ERODES EASILY	SEVERE: EXCESS SODIUM PONDING TOO CLAYEY
274 WOO	MODERATE: DUSTY	MODERATE: DUSTY	MODERATE: DUSTY	SEVERE: ERODES EASILY	SLIGHT
277, 279 WOO	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT
282 WOO	MODERATE: DUSTY	MODERATE: DUSTY	MODERATE: DUSTY	SEVERE: ERODES EASILY	SLIGHT



CONSTRUCTION MATERIALS				
SOIL NAME & MAP #	ROADFILL	SAND	GRAVEL	TOPSOIL
142 BRITTO	POOR: LOW STRENGTH	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: EXCESS SODIUM
167 DELDOTA	POOR: LOW STRENGTH	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: TOO CLAYEY
168 DOSAMIGOS	POOR: LOW STRENGTH	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	FAIR: TOO CLAYEY
169 DOSAMIGOS	POOR: LOW STRENGTH	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: TOO CLAYEY
234, 236 PEDCAT	POOR: SHRINK-SWELL LOW STRENGTH	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: EXCESS SALT EXCESS SODIUM
247 SAN EMIGDIO	GOOD SHRINK-SWELL	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	FAIR: SMALL STONES
248 SANTANELA	POOR: WETNESS	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: WETNESS EXCESS SODIUM
253, 254, 255 STANISLAUS	POOR: LOW STRENGTH	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: THIN LAYER
256 TRIANGLE	POOR: WETNESS LOW STRENGTH SHRINK-SWELL	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	POOR: WETNESS TOO CLAYEY EXCESS SODIUM
274 WOO	FAIR: LOW STRENGTH SHRINK-SWELL	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	FAIR: SMALL STONES
277 WOO	FAIR: LOW STRENGTH SHRINK-SWELL	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	FAIR: TOO CLAYEY SMALL STONES
279 WOO	FAIR: LOW STRENGTH THIN LAYER SHRINK-SWELL	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	FAIR: TOO CLAYEY
282 WOO	FAIR: LOW STRENGTH SHRINK-SWELL	IMPROBABLE: EXCESS FINES	IMPROBABLE: EXCESS FINES	FAIR: SMALL STONES

BUILDING SITE DEVELOPMENT						
SOIL NAME & MAP #	SHALLOW EXCAVATIONS	DWELLINGS W/O BASEMENTS	DWELLINGS W/ BASEMENTS	SM. COMMERCIAL BUILDINGS	LOCAL ROADS & STREETS	LAWNS & LANDSCAPING
142 BRITTO	SEVERE: WETNESS	SEVERE: WETNESS	SEVERE: WETNESS	SEVERE: WETNESS	SEVERE: LOW STRENGTH	SEVERE: EXCESS SODIUM
167 DELDOTA	MODERATE: TOO CLAYEY WETNESS	MODERATE: SHRINK-SWELL	MODERATE: SHRINK-SWELL WETNESS	MODERATE: SHRINK-SWELL	SEVERE: LOW STRENGTH	SEVERE: TOO CLAYEY
168 DOSAMIGOS	MODERATE: TOO CLAYEY WETNESS	SEVERE: SHRINK-SWELL	MODERATE: SHRINK-SWELL WETNESS	SEVERE: SHRINK-SWELL	SEVERE: LOW STRENGTH SHRINK-SWELL	SLIGHT.
169 DOSAMIGOS	MODERATE: TOO CLAYEY WETNESS	SEVERE: SHRINK-SWELL	MODERATE: SHRINK-SWELL WETNESS	SEVERE: SHRINK-SWELL	SEVERE: LOW STRENGTH SHRINK-SWELL	SEVERE: TOO CLAYEY
234,236 PEDCAT	SEVERE WETNESS	SEVERE: SHRINK-SWELL	SEVERE: SHRINK-SWELL WETNESS	SEVERE: SHRINK-SWELL	SEVERE: LOW STRENGTH SHRINK-SWELL	SEVERE:EXCESS SALT & SODIUM
247 SAN EMIGDIO	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT	SLIGHT
248 SANTANELA	SEVERE: PONDING	SEVERE: PONDING	SEVERE: PONDING	SEVERE: PONDING	SEVERE: PONDING	SEVERE: PONDING EXCESS SODIUM
253 STANISLAUS	MODERATE: TOO CLAYEY	SEVERE: SHRINK-SWELL	MODERATE: SHRINK-SWELL WETNESS	SEVERE: SHRINK-SWELL	SEVERE: LOW STRENGTH SHRINK-SWELL	SLIGHT
254 STANISLAUS	MODERATE: TOO CLAYEY WETNESS	SEVERE: SHRINK-SWELL	SEVERE: SHRINK-SWELL	SEVERE: SHRINK-SWELL	SEVERE: LOW STRENGTH SHRINK-SWELL	SLIGHT
255 STANISLAUS	MODERATE: TOO CLAYEY	SEVERE: SHRINK-SWELL	MODERATE: SHRINK-SWELL WETNESS	SEVERE: SHRINK-SWELL	SEVERE: LOW STRENGTH SHRINK-SWELL	SLIGHT
256 TRIANGLE	SEVERE: CUTBANKS CAV PONDING	SEVERE: PONDING SHRINK-SWELL	SEVERE: PONDING SHRINK-SWELL	SEVERE: PONDING SHRINK-SWELL	SEVERE: PONDING SHRINK-SWELL LOW STRENGTH	SEVERE: PONDING TOO CLAYEY EXCESS SODIUM
274, 277 WOO	SLIGHT	MODERATE: SHRINK-SWELL	MODERATE: SHRINK-SWELL	MODERATE: SHRINK-SWELL	MODERATE: LOW STRENGTH SHRINK-SWELL	SLIGHT
279 WOO	MODERATE: TOO CLAYEY WETNESS	MODERATE: SHRINK-SWELL	MODERATE: SHRINK-SWELL WETNESS	MODERATE: SHRINK-SWELL	MODERATE: LOW STRENGTH SHRINK-SWELL	SLIGHT
282 WOO	SLIGHT	MODERATE: SHRINK-SWELL	MODERATE: SHRINK-SWELL	MODERATE: SHRINK-SWELL	MODERATE: LOW STRENGTH SHRINK-SWELL	SLIGHT





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*****
* SURFACE WIND SUMMARY
* Station Name: LOS BANOS
* Elevation: 299 Feet (36)
* Degrees Minutes
* North Latitude: 37 3
* West Longitude: 120 55
* Period of Record:
* FEB 1974 - MAR 1975
* Observations: 9,890
* 24 OBS/DAY
* Bias Index: 0.16
* Speed Units: MPH
* Source Code
* Data: 5
* Summary: N
*****

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DIRECTION	WINTER		SPRING		SUMMER		FALL		ANNUAL	
	% OF TIME	MEAN SPEED	% OF TIME	MEAN SPEED	% OF TIME	MEAN SPEED	% OF TIME	MEAN SPEED	% OF TIME	MEAN SPEED
N	7.8	9.6	7.8	7.5	7.8	6.5	7.1	5.6	7.2	7.5
NNE	4.1	5.6	4.3	10.1	6.7	7.4	6.9	6.4	5.3	7.3
NE	5.7	4.2	3.1	7.2	3.6	5.3	6.3	5.5	4.6	5.3
ENE	2.7	3.7	0.9	5.4	1.4	4.6	3.6	4.9	2.1	4.5
E	3.5	4.3	0.6	3.9	0.1	3.5	1.5	4.3	1.5	4.2
ESE	6.4	4.7	1.1	5.3	0.0	4.0	1.1	4.8	2.4	4.8
SE	8.7	6.6	3.4	8.8	0.1	5.7	2.5	4.4	4.0	6.6
SSE	5.9	7.2	2.8	8.1	****	****	1.9	4.1	2.9	7.8
S	8.1	4.9	2.6	8.1	****	****	5.4	4.9	4.2	5.5
SSW	6.9	4.7	2.7	7.8	0.1	6.7	6.1	4.8	4.8	5.3
SW	7.6	4.2	3.3	6.2	0.3	5.0	6.9	4.7	4.6	4.8
WSW	4.5	6.5	4.2	10.7	0.6	10.6	4.2	5.2	3.5	7.7
W	11.6	10.1	29.1	17.8	28.8	17.3	21.2	12.9	22.2	15.2
WNW	6.3	8.9	25.5	16.2	42.8	17.4	17.3	14.9	22.8	15.9
NW	5.6	7.8	5.2	10.6	7.2	12.8	5.3	8.3	5.8	9.8
NNW	3.9	10.3	3.9	11.9	2.9	8.5	2.8	6.1	3.4	9.7
CALM	0.6		0.3		0.8		0.8		0.8	
ALL		6.6		13.8		14.6		8.7		18.6

	WINTER	SPRING	SUMMER	FALL	ANNUAL
..... RESULTANT WINDS .....					
DIRECTION:	273	284	291	287	287
SPEED:	1.4	9.5	12.9	5.5	7.1
PER. RATIO:	0.21	0.73	0.88	0.63	0.67
..... PREDOMINANT WINDS .....					
DIRECTION:	WSW	WNW	WNW	WNW	WNW
SPEED:	7.5	16.1	16.9	13.1	14.9
PERCENTAGE:	23.7	59.8	77.2	43.8	58.8
..... SECONDARY PREDOMINANT WINDS .....					
DIRECTION:	SSE	N	NNE	NNE	NNE
SPEED:	6.1	9.4	6.6	5.8	6.8
PERCENTAGE:	22.7	15.2	17.3	20.3	17.1

## Seasonal and Annual Distribution of Wind Speeds and Direction at Gustine, California



## AMBIENT AIR QUALITY STANDARDS

COMPARISON OF FEDERAL AND STATE  
AIR QUALITY STANDARDS

Pollutant Averaging Time	Federal Standards Primary	Secondary	State Standard	Objective
Ozone 1-hour	0.12 ppm 240 $\mu\text{g}/\text{m}^3$	Same —	0.09 ppm 180 $\mu\text{g}/\text{m}^3$	To prevent eye irritation, breath- ing difficulties.
Carbon Monoxide 8-hour	9.3 ppm 10 $\text{mg}/\text{m}^3$	Same	9.0 ppm 10 $\text{mg}/\text{m}^3$	To prevent carboxyhemo- globin levels greater than 2%.
1-hour	35 ppm 40 $\text{mg}/\text{m}^3$	Same	20 ppm 23 $\text{mg}/\text{m}^3$	
Nitrogen Dioxide Annual	0.05 ppm 100 $\mu\text{g}/\text{m}^3$	Same	—	To prevent health risk and improve visibility.
1-hour	—	—	0.25 ppm 470 $\mu\text{g}/\text{m}^3$	
Sulfur Dioxide Annual	0.03 ppm 80 $\mu\text{g}/\text{m}^3$	—	—	To prevent increase in respiratory disease, plant damage & odor.
24-hour	0.14 ppm 365 $\mu\text{g}/\text{m}^3$	—	0.05 ppm 131 $\mu\text{g}/\text{m}^3$	
3-hour	—	0.5 ppm 1310 $\mu\text{g}/\text{m}^3$	—	
1-hour	—	—	0.25 ppm 655 $\mu\text{g}/\text{m}^3$	
Sulfates 24-hour	—	—	25 $\mu\text{g}/\text{m}^3$	To improve visibility and prevent health effects.
Particulate ( $\text{PM}_{10}$ )* Annual Mean**	50 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$	30 $\mu\text{g}/\text{m}^3$	To improve visibility and prevent health effects.
24-hour average	150 $\mu\text{g}/\text{m}^3$	150 $\mu\text{g}/\text{m}^3$	50 $\mu\text{g}/\text{m}^3$	
Visibility Reducing Particles	State Standard: One observation. In sufficient amount to reduce the prevailing visibility to less than ten miles when the relative humidity is less than 70%.			
Lead 30-day Calendar quarter	— 1.5 $\mu\text{g}/\text{m}^3$	— Same	1.5 $\mu\text{g}/\text{m}^3$ —	To prevent health problems.
Hydrogen Sulfide 1-hour	—	—	0.03 ppm 42 $\mu\text{g}/\text{m}^3$	To prevent odor problems.
Vinyl Chloride (Chloroethene) 24-hour	—	—	0.010 ppm 26 $\mu\text{g}/\text{m}^3$	To prevent health problems
* $\text{PM}_{10}$ = Particulate matter ten microns or less in size.				
** Annual Mean: Federal=Arithmetic mean State=Geometric mean				
Source: Bay Area Air Quality Management District, <u>Air Quality Handbook</u> (1989-1990).				





## MERCED COUNTY DAILY EMISSION BURDEN, 1987 (a)

POLLUTANT EMISSION	EMISSIONS (TONS/DAY)		
	STATIONARY	MOBILE	ALL
Total Organics (TOG)	15	20	35
Carbon Monoxide (CO)	46	130	176
Nitrogen Oxides (NO <sub>x</sub> )	2.1	33	35
Sulfur Oxides (SO <sub>x</sub> )	0.6	3.7	4.3
Total Particulates (TSP)	130	7.3	137
Ten Micron Particulates (PM <sub>10</sub> )	67	6.5	74
(a) 1987 was the year of the most recent emissions inventory for Merced County.			
Source: California Air Resources Board, <u>1987 Base Year Inventory</u>			

IMPACTS

Air quality impacts will be analyzed according to the following criteria:

1. Are California's ambient air quality standards violated?
2. Will construction emissions (e.g., dust) result in nuisance?
3. Will project emissions exceed Best Available Control Technology (BACT) offset levels in the County of Merced?
4. Will the project be consistent with goals or regulations to be included in the forthcoming County Air Quality Management Plan? Potential impacts are evaluated using these above criteria; and
5. Will the project be located in an area recognized to be adversely affected by industrial or agricultural air pollution?

Construction Impacts. Earthmoving, hauling, and other construction activities would result in localized and temporary increases in the levels of PM<sub>10</sub>. Construction vehicles traveling over unpaved roadways will also result in temporary increases in levels of PM<sub>10</sub>. These emissions would constitute a significant impact to local and regional air quality.

